PNNL-14468

Pacific Northwest
National Laboratory
Operated by Battelle for the
U.S. Department of Energy

Threatened and Endangered Species Evaluation for Operating Commercial Nuclear Power Generating Plants

M. R. Sackschewsky

January 2004

Prepared for the
License Renewal and Environmental Impacts Branch
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
and the U.S. Department of Energy
under Contract DE-AC06-76RL01830

DISCLAIMER

PACIFIC NORTHWEST NATIONAL LABORATORY
operated by
BATTELLE
for the
UNITED STATES DEPARTMENT OF ENERGY
under Contract DE-AC06-76RL01830

PNNL-14468

Threatened and Endangered Species Evaluation for Operating Commercial Nuclear Power Generating Plants

M. R. Sackschewsky

January 2004

Prepared for
the U.S. Department of Energy
under Contract DE-AC06-76RL01830

Pacific Northwest National Laboratory
Richland, Washington 99352

EXECUTIVE SUMMARY

The Endangered Species Act (ESA) of 1973, as amended, and related implementing regulations of the jurisdictional federal agencies, the U.S. Departments of Commerce and Interior, require that federal agencies ensure that any action authorized, funded, or carried out under their jurisdiction is not likely to jeopardize the continued existence of any threatened or endangered (T&E) species or result in the destruction or adverse modification of critical habitats for such species. The issuance and maintenance of a federal license, such as a construction permit or operating license issued by the U.S. Nuclear Regulatory Commission (NRC) for a commercial nuclear power facility is a federal action under the jurisdiction of a federal agency, and is therefore subject to the provisions of the ESA.

The NRC staff performed appropriate assessments of potential impacts to threatened or endangered species, and consulted with appropriate agencies with regard to protection of such species in authorizing the construction, operation, and relicensing of nuclear power generating facilities. The assessments and consultations concerning many of the facilities were performed during the 1970's or early 1980's, and have not been re-evaluated since those initial evaluations.

A review of potential Endangered Species Act issues at all licensed commercial nuclear power facilities was completed in 1997. At that time, approximately 484 ESA-listed species were identified as potentially occurring near one or more of the 75 facility sites that were examined. The current review re-evaluated 38 of those sites and determined which sites should be considered for a follow up evaluation. An update of the 1997 T & E species evaluation was needed because nearly 200 species have been added to the ESA list since 1997, critical habitats have been designated for many species, and significantly more information is available online, allowing for more efficient evaluations of potential species presence near.

The updated evaluation included searching the NRC's ADAMS database to find documents related to the take of T&E species, management of T&E species, evaluations of potential effects of operation on T&E species, and consultation with federal resource management agencies regarding T&E species. Species potentially present at each site were determined via the Geographical, Environmental, and Siting Information System (GEn&SIS) database developed by Lawrence Livermore National Laboratory. These results were compared to the list of species identified in the 1997 review, and in the cases of sites that were in the relicensing process, with the results of those site specific evaluations. A total of 452 T&E species were identified as potentially occurring near one or more of the evaluated reactor sites. Information about each species was gathered to support an assessment of the probability of occurrence at each of the reactor sites.

Based on the assessments of species potentially affected at each site, and the information obtained from the NRC ADAMS database, each site was assigned a priority value for follow-up evaluations. The priority listing did not include any sites that have already entered or are expected to enter the relicensing process before the end of 2005, or those that have initiated decommissioning. Of the 39 remaining sites, those that were identified as the highest priority for follow-on evaluations are: Diablo Canyon, San Onofre, Crystal River, Harris, and Vogtle, followed by South Texas, Palo Verde, Salem, and Cooper.

CONTENTS

1. INTRODUCTION 1
   1.1. Responsibilities Under the Endangered Species Act 1
   1.2. Scope and Limitations 3
   1.3. Sites Reviewed in the Current Evaluation: 4
   1.4. Impacts of Nuclear Power Plants on Threatened and Endangered Species 7

2. DATA COLLECTION AND COMPILATION 11
   2.1. Licensee and NRC Documentation 11
   2.2. County-Level Species Presence Data 11
   2.3. Species Distribution and Critical Habitat Information 12

3. EVALUATION RESULTS 15
   3.1. ADAMS Results 15
   3.2. GEn&SIS Database Query / Species Present 16
   3.3. Site Evaluations and Summaries 17
      3.3.1. Arnold 18
      3.3.2. Braidwood 18
      3.3.3. Byron 20
      3.3.4. Callaway 20
      3.3.5. Clinton 20
      3.3.6. Comanche Peak 20
      3.3.7. Cooper 20
      3.3.8. Crystal River 21
      3.3.9. Diablo Canyon 21
      3.3.10. Fermi 21
      3.3.11. Fitzpatrick 22
      3.3.12. Grand Gulf 22
      3.3.13. Harris 22
      3.3.14. Hope Creek 22
      3.3.15. Indian Point 23
      3.3.16. Kewaunee 23
      3.3.17. La Salle 23
      3.3.18. Limerick 23
      3.3.19. Monticello 24
      3.3.20. Oyster Creek 24
      3.3.21. Palisades 24
      3.3.22. Palo Verde 24
      3.3.23. Perry 25
      3.3.24. Prairie Island 25
      3.3.25. River Bend 25
      3.3.26. Salem 25
      3.3.27. San Onofre 26
      3.3.28. Seabrook 26
      3.3.29. Sequoyah 26

3.3.30. South Texas 27
3.3.31. Susquehanna 27
3.3.32. Three Mile Island 27
3.3.33. Vermont Yankee 27
3.3.34. Vogtle 28
3.3.35. Waterford 28
3.3.36. Watts Bar 28
3.3.37. WNP-2 29
3.3.38. Wolf Creek 29

4. SUMMARY AND CONCLUSIONS 31
4.1. Summary of Phase 2 Priorities 31
4.2. Procedure for Phase 2 Evaluations 31

5. REFERENCES 33

Appendix A – Species Listing By Site A-1

Appendix B – Species Distributions and Critical Habitats B-1

TABLES

1 Commercial Nuclear Power Reactor Sites Considered For Phase 2 Threatened or Endangered Species Evaluations 5

2 Commercial Nuclear Power Reactor Sites Not Considered For Phase 2 Threatened or Endangered Species Evaluations 6

3 Summary of Potential Aquatic Effects of Power Plant Operations 8

4 Summary of Potential Terrestrial Effects of Power Plant Operations 9

5 Summary of Documents Retrieved From the ADAMS Database 15

6 Summary of Potential Species Occurrences near Operating Power Plants Identified by GEn&SIS or Other Sources 16

7 The Sites With the Greatest Number of Potential Species Occurrences. 17

8 Priorities For Phase 2 Threatened or Endangered Species Evaluations 19

9 Sites Grouped By Priority Level For Phase 2 Follow-Up Evaluations 32

1. INTRODUCTION

In 1997 at the request of the U.S. Nuclear Regulatory Commission (NRC), Pacific Northwest National Laboratory (PNNL) completed a review of potential Endangered Species Act (ESA) issues at all of the licensed commercial nuclear power facilities (Sackschewsky 1997). In that Phase 1 review approximately 484 different ESA-listed species were identified as potentially occurring near one or more of the 75 facility sites examined. In 2003, the NRC asked PNNL to update the previous threatened and endangered (T&E) species evaluation because since 1997:

- Nearly 200 species have been added to the ESA list,
- Critical habitats have been designated for many listed species,
- Significantly more information is available via the Internet, allowing for improved evaluations of potential species presence and operational impacts.

The primary purpose of the Phase 1 review update was to evaluate the current potential for adverse impacts to T&E species at those facilities that had not been recently evaluated in detail. This evaluation was used to make recommendations for Phase 2 follow-up evaluations at those sites with the highest potential for adverse impacts to T&E species. As part of the review, two basic questions were asked concerning each site:

1) Have there been any known adverse impacts to threatened or endangered species for which appropriate follow-up actions or consultations were not pursued?

2) Are there any species present at or near the site that may be adversely affected by site operations (i.e. what is the likelihood of heretofore undocumented impacts?)

Although the NRC is not aware of any noncompliance with the ESA by any of its licensees, the Office of Nuclear Reactor Regulation (NRR) staff have determined, based on their experience and the periodic inclusion of additional species on the lists maintained at 50 CFR 17.11 and 50 CFR 17.12, that periodic review of the current status of ESA compliance at each licensed commercial nuclear power generating facility is warranted. To this end, the NRR has requested PNNL assistance in developing a review process and an updated database that can be used to ensure all commercial nuclear power plants licensed by the NRC are compliant with the ESA. This in turn will ensure the continued preservation of species that may be present at or near these facilities and might be impacted by the facilities.

This report documents PNNL's efforts to re-evaluate compliance with the ESA at commercial nuclear power generating facilities licensed by the NRC.

1.1. Responsibilities Under the Endangered Species Act

The Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.), as amended, and related implementing regulations of the jurisdictional federal agencies, the U.S. Departments of Commerce and Interior, at 50 CFR Part 17.1, et seq., require that federal agencies ensure that any action authorized, funded, or carried out under their jurisdiction is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or

adverse modification of critical habitats for such species. The issuance and maintenance of a federal license, such as a construction permit or operating license issued by the NRC for a commercial nuclear power generating facility is a federal action under the jurisdiction of a federal agency, and is therefore subject to the provisions of the ESA.

The U.S. Department of the Interior [through the U.S. Fish and Wildlife Service (USFWS)], and the U.S. Department of Commerce (through National Oceanic and Atmospheric Administration (NOAA) Fisheries, formerly the National Marine Fisheries Service) share responsibility for administration of the ESA. NOAA Fisheries is responsible for species that inhabit marine environments and anadromous fish, while the USFWS is responsible for terrestrial and freshwater species and migratory birds. A species (or other distinct taxonomic unit such as subspecies, variety, and for vertebrates, distinct population units) may be classified for protection as "endangered" when it is in danger of extinction within the foreseeable future throughout all or a significant portion of its range. A "threatened" classification is provided to those animals and plants likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges. As of June 2003, there were about 1263 species listed under the ESA in the United States (987 endangered, 276 threatened). Additionally, there were approximately 33 species currently proposed for listing as threatened or endangered, and another 256 species identified as candidates for formal listing proposals. Nearly 200 more species currently are listed as either endangered or threatened in the United States than when the previous NRC review was published (Sackschewsky 1997).

Three sections of the ESA (Sections 7, 9, and 10) directly affect NRC licensing activities. Section 7 of the ESA requires that all federal agencies use their authority in furtherance of the purposes of the ESA, and that they consult with the appropriate service when any activity permitted, funded or conducted by that agency may affect a listed species or designated critical habitat, or is likely to jeopardize proposed species or adversely modify proposed critical habitat. The purpose of this consultation is to identify and quantify potential adverse affects on listed species and develop reasonable and prudent measures to aid in conserving the listed species. In most cases of NRC licensing activities, this has taken the form of an informal consultation at the time of the licensing action, or in a few instances, has occurred subsequent to the licensing action in the form of a formal consultation when actual or potential impacts to one or more listed species were discovered.

Section 9 of the ESA prohibits the taking of federally listed species without appropriate authorization. Take is defined under the ESA, in part, as "killing, harming, or harassment" of a federally listed species. Section 10 of the ESA provides a mechanism by which the jurisdictional agency can authorize an exemption to the provisions of Section 9, in the form of an incidental take permit. Incidental take is one that is "incidental to, and not the purpose of, otherwise lawful activities." Incidental take permits are normally issued only if it is determined that the take will not appreciably reduce the likelihood of the survival and recovery of the species; that the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the taking; and that the applicant will ensure that other measures that the USFWS and/or NOAA Fisheries may require as being necessary or appropriate will be provided.

The NRC has the responsibility under the ESA at the time of a licensing activity to either perform or ensure that the following actions are performed:

- determine what species listed under the ESA are potentially affected by the proposed action
- assess the potential impacts of the proposed action on those species
- consult, either formally or informally as appropriate, with the jurisdictional agencies with regard to the potential impacts of the proposed action
- work with the jurisdictional agency to secure an incidental take permit if incidental take of one or more species is likely, and the issuance of such a permit is appropriate.

The NRR staff have performed appropriate assessments of potential impacts to threatened or endangered species, and consulted with appropriate agencies with regard to protection of such species in authorizing the construction, operation, and relicensing of nuclear power generating facilities. Guidance for performing these assessments were outlined in NUREG-0555 "Environmental Standard Review Plan (ESRP) for the Environmental Review of Construction Permit Applications for Nuclear Power Plants," (NRC 1979). The ESRP was not available for the evaluation of the majority of licensed commercial nuclear power generating plants. The assessments and consultations concerning many of the facilities were performed during the 1970s or early 1980s, and have not be re-evaluated or updated since those initial evaluations. The ESRP was updated and re-issued in 1999 as NUREG-1555 for the evaluation of applications for new plants (NRC 1999a) and as NUREG-1555 Supplement 1 for the evaluation of license renewal applications (NRC 1999b).

During normal operations of a nuclear facility, the NRC has the oversight responsibility to:

- ensure facility operations do not adversely affect any listed species or adversely modify critical habitats for those species
- work with the licensee and jurisdictional agency, if unforeseen take does occur, to develop mitigative measures to minimize any future takes and secure an incidental take permit if needed and appropriate.

The licensee is prohibited under the ESA from taking listed species or from adversely modifying designated or proposed critical habitats for listed species. In most cases, it is a license requirement to report to the NRC the mortality of any species listed under the ESA. If during the course of normal operations an unexpected take does occur, the licensee must work with the jurisdictional agency and the NRC to develop appropriate mitigative measures to minimize or prevent future takes and to secure an incidental take permit, if needed and appropriate.

1.2. Scope and Limitations

The scope of the current review of ESA compliance was somewhat smaller than the Phase 1 evaluation reported in Sackschewsky (1997). Fewer sites were included in the more detailed analysis, and there was no attempt to correspond directly with the USFWS and NOAA Fisheries to get new lists of potentially affected species. Interaction with USFWS and NOAA Fisheries does occur during the relicensing process, or during other licensing actions for specific sites.

These agencies will also be contacted during follow-up evaluations of any sites identified in this review as being priority sites for such evaluations.

Because this review is based entirely on publicly available information, inherent limitations exist on the comprehensiveness and accuracy of the presence / absence and impact evaluations. There is never a substitute for direct interactions with the licensee and the jurisdictional agencies, or for site specific field investigations.

The scope of the current review was limited to determining the potential for adverse impacts at 38 reactor sites. It was not designed to fully evaluate the magnitude of impacts or even to determine if impacts are actually occurring. More detailed analyses of effects and evaluations of impacts should be directed, in the future, to those sites identified through this broad-scale evaluation as having the greatest potential to adversely affect threatened or endangered species. Recommendations for follow-on or Phase 2 evaluations made based on this preliminary analysis are included in section 4.0.

1.3. Sites Reviewed in the Current Evaluation:

The 1997 T&E species evaluation included reviews of potential species occurrences at 75 different commercial nuclear power reactor sites. The current review evaluated 38 of tose sites in detail and determined which sites should be considered for a Phase 2 follow-on evaluation (Table 1). The remaining 37 sites (Table 2) were excluded from detailed analysis. They were not considered for Phase 2 analysis because:

- they have recently been well evaluated for potential impacts to threatened and endangered species during the license renewal evaluation process (20 sites)

- the licensee has indicated it intends to submit an application for license renewal within the next 2 years (i.e., they are in the relicensing queue), and therefore, the sites will be thoroughly reviewed in the near future (7 sites)

- or the plants are in the decommissioning process, and therefore, the potential for operational or maintenance impacts on T&E species is greatly reduced, and any impacts due to decommissioning are being evaluated as part of the decommissioning and license termination reviews (10 sites).

Of the 38 plants for which detailed analysis were conducted, several are likely to be evaluated as part of other actions. For instance, the evaluation of applications for early site permits should effectively cover potential impacts at Clinton and Grand Gulf. The Fitzpatrick plant is essentially co-located with Nine Mile Point, for which a relicensing application is expected in the spring of 2004. Finally, license renewal applications for at least 5 plants listed in Table 1 are expected before the end of 2005, but the licensees have chosen to withhold the names of the specific plants at this time. Therefore, of the 38 plants reviewed in this document, at least 8 are likely to be at least partially evaluated in terms of T&E species as part of various licensing reviews during the next 2 years. In order to maintain consistency in the electronic database,

Table 1. Commercial Nuclear Power Reactor Sites Considered For Phase 2 Threatened or Endangered Species Evaluations	
Site	**Comments**
Arnold	
Braidwood	
Byron	
Callaway	
Clinton	Location of an early site permit application under review
Comanche Peak	
Cooper	
Crystal River	
Diablo Canyon	
Fermi	
Fitzpatrick	Co-located with Nine Mile Point (in relicensing queue)
Grand Gulf	Location of an early site permit application under review
Harris	
Hope Creek	
Indian Point	
Kewaunee	
La Salle	
Limerick	
Monticello	
Oyster Creek	
Palisades	
Palo Verde	
Perry	
Prairie Island	
River Bend	
Salem	
San Onofre	
Seabrook	
Sequoyah	
South Texas	
Susquehanna	In relicensing queue for 2006
Three Mile Island	
Vermont Yankee	
Vogtle	
Waterford	
Watts Bar	Operating license granted in 1996
WNP-2	Now called Columbia Generating Station
Wolf Creek	In relicensing queue for 2006

Table 2. Commercial Nuclear Power Reactor Sites Not Considered For Phase 2 Threatened or Endangered Species Evaluations	
Site	**Reason for Exclusion**
Arkansas Nuclear One	Unit 1 Relicensed, 2001
Beaver Valley	Relicensing queue (expected September 2004)
Big Rock Point	Decommissioning
Browns Ferry	Relicense application under evaluation
Brunswick	Relicensing queue (expected December 2004)
Calvert Cliffs	Relicensed, 2000
Catawba	Relicensed, 2003
Cook	Relicense application under evaluation
Davis Besse	Relicensing queue (expected December 2004)
Dresden	Relicense application under evaluation
Farley	Relicense application under evaluation
Fort Calhoun	Relicensed, 2003
Fort St. Vrain	Decommissioned, license terminated
Ginna	Relicense application under evaluation
Haddam Neck	Decommissioning
Hatch	Relicensed, 2002
LaCrosse	Decommissioning
Maine Yankee	Decommissioning
McGuire	Relicensed, 2003
Millstone	Relicensing queue (expected January 2004)
Nine Mile Point	Relicensing queue (expected May 2004)
North Anna	Relicensed, 2003
Oconee	Relicenced, 2000
Peach Bottom	Relicensed, 2003
Pilgrim	Relicensing queue (expected December 2004)
Point Beach	Relicensing queue (expected February 2004)
Quad Cities	Relicense application under evaluation
Ranch Seco	Decommissioning
Robinson	Relicense application under evaluation
Shoram	Decommissioned, license terminated
St. Lucie	Relicensed, 2003
Summer	Relicense application under evaluation
Surry	Relicensed, 2003
Trojan	Decommissioning
Turkey Point	Relicensed, 2002
Yankee Rowe	Decommissioning
Zion	Decommissioning

species lists and potential occurrence evaluations were prepared for all of the operating commercial nuclear reactor sites. No additional data were collected for the plants that have initiated decommissioning.

1.4. Impacts of Nuclear Power Plants on Threatened and Endangered Species

The potential ecological impacts of commercial nuclear power plant operation were examined within the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*, NUREG-1437 issued in June 1996 (NRC 1996). Although NUREG 1437 is specifically directed at license renewal, the examination of potential impacts contained within that document is pertinent to all licensing actions. These impacts are not discussed in detail in this report, but the primary potential aquatic effects are summarized in Table 3. The primary potential terrestrial effects are summarized in Table 4. These potential impacts were considered in the overall evaluation for each power plant site. NUREG-1437 determined that most of the potential ecological impacts listed in Tables 3 and 4 are minor and that they can be considered generically with regard to license renewal and that detailed facility-specific evaluations are not required for license renewal. However, NUREG-1437 concludes that threatened and endangered species issues cannot be treated generically in regard to license renewal and must be considered on a site-specific basis. Impacts to threatened and endangered species and other ecological resources may need to be considered on a site-specific basis in regard to other licensing actions. Additional guidance for the evaluation of ecological impacts, in general, as well as impacts of nuclear power plant operations on T&E species are provided in NUREG-1555, *Standard Review Plans for the Environmental Reviews for Nuclear Power Plants* (NRC 1999a), NUREG-1555 Supplement 1, *Standard Review Plans for the Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal* (NRC 1999b), and NRC Regulatory Guide 4.2, *Preparation of Environmental Reports for Nuclear Power Station*, and NRC Regulatory Guide 4.2 Supplement 1, *Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses* (NRC 2000).

For the purposes of this report, a distinction is made between potential impacts to T&E species and more generalized ecological impacts of a facility. In theory, a particular facility could have significant ecological impacts but not impacts to T&E species (if there are no such species naturally occurring in the vicinity). Conversely, a particular facility could adversely affect one or more T&E species without an observable overall ecological impact. For instance, a small alteration of the aquatic temperature regime could cause a population decline of a threatened mussel species that makes up a very small proportion of the overall mussel community, but cause no observable changes in the total number of individual mussels, the size of fish populations, aquatic vegetation, or any other observable ecological parameter.

Table 3. Summary of Potential Aquatic Effects of Power Plant Operations	
Potential Effect	**Summary**
Altered salinity gradient	Tends to be minor and within range of normal seasonal or tidal changes in salinity.
Altered thermal stratification	Can be a substantial ecological effect, but the largest stratification changes occur in artificial reservoirs that usually do not have threatened or endangered species.
Sediment scouring	Tends to be localized near the point of high velocity discharge structures. May be important depending on site-specific conditions.
Enhanced eutrophication	If this occurs, it could result in the loss of habitat for some threatened or endangered species. However, it has not been shown to be occurring at any operating nuclear power facility.
Discharge of chlorine and biocides	Regulated by the NPDES permits, many facilities have reduced biocide use, or have adopted other ways to clean condenser piping.
Heavy metals	This is regulated by the NPDES permits. Normally not serious, but there have been problems with copper, especially following periods of facility shut-down. Therefore there may be indirect effects of heavy metals on threatened or endangered species present in the area.
Entrainment of fish and shellfish	Potential major issue for all nuclear facilities that have threatened or endangered fish or shellfish in the vicinity.
Impingement	Potential major issue for facilities that have threatened or endangered fish, shellfish, sea turtles, or other rare aquatic species in the vicinity.
Heat Shock	Tends to be localized near the point of discharge, but could be a potential effect on threatened or endangered species.
Cold Shock	Can occur to warm-water acclimated organisms when a facility is shut down. Tends to be localized, but is a potential effect on threatened or endangered species.
Indirect thermal plume effects	Thermal plumes may alter metabolic rates, benthic community composition, parasitism, and disease rates, stimulate nuisance organisms or create barriers to fish migration. In some cases, these could be important considerations for rare species ecology.
Gas Bubble Disease	Mainly occurs to fish inhabiting discharge canals, probably not a significant problem for threatened or endangered species.
Low dissolved oxygen in discharge waters	May aggravate heat stress effects. Normally not a major concern, but is a potential problem for threatened or endangered species.

Table 4. Summary of Potential Terrestrial Effects of Power Plant Operations	
Potential Effect	**Summary**
Salt Drift	Usually minor and relatively localized, probably not a major effect on threatened or endangered species
Icing	Normally a localized effect, may alter habitat for some species, but probably is not a major effect on threatened or endangered species.
Bird Collisions - Cooling Towers and other Plant Site Structures	Cooling towers can cause significant bird collisions if they are not well lit. Other structures at the plant site should not be significantly different from any other building, and are probably not a significant problem for threatened or endangered species.
Bird Collisions - Transmission lines	The number of bird collisions with transmission lines is not known, especially in non-wetland areas. May be most prevalent near wetland areas occupied by many birds. Can be an issue if the lines pass through habitats that support concentrated populations of rare bird species.
Transmission line right-of-way maintenance	Probably the greatest potential impact to rare plant and insect species, because they could be affected by almost all maintenance operations such as herbicides, mowing, vehicular trampling, etc. This aspect of transmission line maintenance was not evaluated in the License Renewal GEIS.
Electromagnetic fields (EMF)	EM fields can effect growth of plant parts near energized lines, but generally do not effect overall plant growth of trees, and probably have little effect on shrubs or herbaceous plants physically separated from the lines. Effects of EMF on wildlife appear to be minimal.
Electrocution	This is a concern primarily for raptors. This was not evaluated in the License Renewal GEIS.

2. DATA COLLECTION AND COMPILATION

The data compiled to support identification of potential ESA-related issues at licensed commercial nuclear power generation facilities include information concerning the threatened, endangered, proposed, and candidate species potentially present in the vicinity of each site or associated transmission lines as identified via

- licensee and NRC documentation, including the Final Environmental Statements (FES) for each site and Draft or Final Supplemental Environmental Impact Statements (DSEIS or FSEIS) for the sites that are in the relicensing process, or other environmental documents, letters, and reports available through the NRC electronic document databases

- the Geographical, Environmental, and Siting Information System (GEn&SIS) database program developed by Lawrence Livermore National Laboratory (LLNL)

- information from several on-line sources, especially the USFWS website

- specific site knowledge (in the case of WNP-2 or other sites visited or evaluated by the author) and other independent sources such as books, journals, and other published material.

2.1. Licensee and NRC Documentation

The Agency-wide Documents Access and Management System (ADAMS) was queried for documents related to the presence of T&E species at each site, interactions or consultations with USFWS or NOAA Fisheries, or other information related to this review. The ADAMS database was initiated in November 1999 to replace the previous Nuclear Documents System (NUDOCS) database. Sackschewsky (1997) included a similar database search based on NUDOCS that was essentially current through early 1997. Therefore, it is likely that pertinent documents were filed under NUDOCS between early 1997 and late 1999 that were not covered under either the 1997 or the current evaluation. Some of these are referenced or alluded to in documents retrieved from ADAMS. However, neither the present ADAMS search nor the previous NUDOCS search produced many pertinent documents; therefore, it is likely that relatively few documents from the 2.5 year window are not referred to in later documents. In several cases responses to Freedom of Information Act (FOIA) request responses were found. These responses often included documents from the 2.5 year window between the previous review and the switch to the ADAMS system. The ADAMS search was limited primarily to those power plant sites listed in Table 1, although some information about plants in the relicensing queue was found.

2.2. County-Level Species Presence Data

A list of all reported T&E species within the counties at least partially within 50 miles (80 km) of each of the operating nuclear power plant sites (Table 1 and Table 2) was obtained from the GEn&SIS database. The database query results are provided in Appendix A.

The GEn&SIS database was found to be a useful tool for evaluating potential T&E species occurrences in the vicinity of commercial nuclear power generating facilities. This system was developed to assist the NRC in regulatory and licensing activities in the areas of siting and environmental protection. It contains information about diverse subject areas such as wetlands, nuclear facilities, U.S. Department of Energy (DOE) facilities, seismic/geological data, Superfund sites, demographics, and many other types of information, including T&E species. GEn&SIS synthesizes maps of many of the parameters, and produces tabular output for those parameters that are not distinctly spatial in nature. Any location within the conterminous United States can be selected for analysis.

The T&E species information used by GEn&SIS is obtained from a database maintained by the U.S. Environmental Protection Agency (EPA), which is indirectly related to USFWS databases. In regard to T&E species, GEn&SIS is most useful for estimating the number, variety, and general distribution of species that may occur in a particular area. The user inputs a specific location and a desired search radius, and GEn&SIS reports back all the endangered, threatened, and proposed species that have been reported to occur in each county that occurs at least partially within the search radius.

One of the most powerful features of the GEn&SIS database is that it provides species information by county. This information is otherwise only available either through direct interactions with the appropriate USFWS field office for the site of interest, or indirectly through examination of state natural heritage databases. GEn&SIS provides instantaneous information about any desired location.

2.3. Species Distribution and Critical Habitat Information

Information was obtained concerning each of the species identified via GEn&SIS, the previous review (Sackschewsky 1997), or other sources, as potentially occurring near each of the licensed power reactor sites. The USFWS endangered species web pages (http://endangered.fws.gov/) provided most of the information, which may include for each species:

- maps and descriptions of designated critical habitat
- recovery plans with distribution descriptions
- Federal Register notices of the listing action.

Distribution maps for a number of species that may be located near licensed sites are provided in Appendix B. The publicly available information from the USFWS web pages, information available in draft and final supplemental environmental impact statements, and the results found by Sackschewsky (1997) were used to make a determination of the likelihood that each of the species identified by GEn&SIS could be found near each site or its transmission lines. The potential for presence was classified using the following categories:

- "Yes" – for species known to be present at a site

- "Possible" – for species that appear likely to occur near the site or transmission lines
- "Low" – for species that do not appear likely to occur near the site or transmission lines
- "No data" – species for which insufficient data were available to make a determination (these are primarily rare species that were among the first to be listed in the late 1960s or early 1970s, and recovery plans have not been developed and critical habitat has not been designated).

Is several cases, critical habitat areas were identified near various plant sites: these are designated by "CH" in Appendix A. At sites that have completed or are currently in the relicensing process, species that were considered in the Supplemental Environmental Impact Statement (SEIS) analysis (especially within a biological assessment) were categorized as "possible" even if the analysis determined that they would not be directly affected by plant operations.

3. EVALUATION RESULTS

3.1. ADAMS Results

Overall, surprisingly few pertinent documents were found in ADAMS. Information was found concerning 13 sites, 4 of which are currently in the relicensing queue. A summary of the documents found is provided in Table 5.

Table 5. Summary of Documents Retrieved From the ADAMS Database

Site	# of Documents	Summary
Arnold	1	Supplemental environmental report for power uprate. States no known T&E species within site boundary.
Browns Ferry	1	An EIS prepared by the Tennessee Valley Authority in support of planned relicensing
Brunswick	16	Formal consultation concerning sea turtles, completed in 2000
Clinton	1	Environmental report for extended power uprate. Indicates no effects on biota
Crystal River	22	Formal consultation concerning sea turtles, completed in 2002, and follow-up reports
Cook	1	Report of a large influx of alewife into intake screens
Diablo Canyon	3	Reports of live sea turtle takes (7 total) between 1994 and 2001 and a record of the Section 7 consultation at time of initial licensing (1980).
Millstone	1	Only document is a FOIA request, but no response was located
Oyster Creek	34	Section 7 consultation regarding sea turtles completed in 2001; several incident reports found
Pilgrim	1	1999 Semi-annual report on marine ecology studies related to Pilgrim operation. Does not discuss T&E species
Salem	13	FOIA response included records of turtle and shortnose sturgeon impingements between 1994 and 1998. Apparently the Section 7 consultation was concluded in 1993.
San Onofre	4	Notification that a dead brown pelican was discovered on site. Report of an unusual fish kill in 1999, records of interactions between USFWS and Camp Pendleton concerning various listed species; press release indicating increase in number of seals and sea lions entrained in intake system.
Seabrook	2	FOIA request (no response) and letter concerning entrapment of seals in intake system

3.2. GEn&SIS Database Query / Species Present

GEn&SIS results were obtained for 63 operating reactor sites. Due to programming issues, T&E species results for the Pilgrim and Seabrook sites were not available. It also appears that the data set GEn&SIS draws upon does not contain a complete listing for species under NOAA Fisheries jurisdiction. For instance, no sea turtles were identified as occurring at Crystal River, Salem, Brunswick, and other sites where there have been ongoing Section 7 consultations concerning the take of sea turtles. These omissions were added to the list of potential species for each site, where appropriate, and these additions are indicated as "NGS" in Appendix A. A few other species were added to the list of potential species based on data other than GEn&SIS. For instance, critical habitat for piping plover is located approximately 2 to 3 miles south of the Point Beach Plant in Wisconsin, but the species was not identified by GEn&SIS as occurring in the area. Although only 38 sites were assigned priorities for Phase 2 follow-on evaluations, data were collected for all operating reactors in order to maintain consistency in the electronic database.

A total of 1180 potential species occurrences, encompassing 452 different species, were identified at the 63 sites for which data were available. The distribution of these potential occurrences by organism type is presented in Table 6.

Table 6. Summary of Potential Species Occurrences near Operating Power Plants Identified by GEn&SIS or Other Sources

Class	# of Species	# of Records
Clams	58	135
Snails	12	19
Crustaceans	8	9
Insects / Arachnids	16	48
Fish	44	102
Amphibians	9	12
Reptiles	21	88
Birds	32	233
Mammals	34	101
Plants	218	433
TOTAL	452	1180

Of the 1180 potential occurrences, analysis of the SEIS's and other distribution information identified 59 cases in which the species was definitely present at the site, 410 cases where there was a reasonable possibility of occurrence, 670 cases that were determined to be low probability of occurrence, and 41 cases for which there were insufficient data to make a category determination. Critical habitat for 18 species was identified near the facilities.

Gen&SIS identified 97 potential species occurrences that were not identified by Sackschewsky (1997). Most of these were species that had been listed since the previous publication. Sackshewsky (1997) identified a large number of species occurrences that were not included in

the current GEn&SIS download. However, the vast majority of those species were previously only identified by the earlier GEn&SIS download in counties within a 100 km (60 mile) search radius (the radius used in the present analysis was 80 km [50 miles]) and not in other information sources used for that report. The smaller search radius greatly reduced the number of counties included in the analysis, and presumably, any species not included here that were included previously are only likely to occur in areas farther than 50 miles from the plant sites.

The sites with the greatest number of potential species identified include San Onofre with 99 species and Diablo Canyon with 85 species. Susquehanna had the fewest species with 4. The 10 sites with the greatest number of species are listed in Table 7.

Table 7. Sites With the Greatest Number of Potential Species Occurrences

Site	Total # of species identified by GEn&SIS or other sources	# Species present, possibly present, or insufficient data
San Onofre	99	24
Diablo Canyon	85	36
Watts Bar	60	15
Browns Ferry	59	30
Sequoyah	59	19
St. Lucie	48	18
Turkey Point	36	19
Farley	35	14
Crystal River	29	25
Oconee	29	11

3.3. Site Evaluations and Summaries

The evaluation of potential impacts to T&E species at commercial nuclear power facilities is expected to occur over 2 phases. The first is represented by Sackschewsky (1997) and has been updated in this report. The purpose of the Phase 1 evaluation is to screen out the sites with the greatest potential to have issues that need to be resolved through more detailed analysis. A Phase 2 evaluation requires more detailed analysis, direct interactions with licensee personnel, correspondence or meetings with USFWS and/or NOAA Fisheries staff, and potentially the preparation of Biological Assessments to support Section 7 consultations. Because a Phase 2 evaluation would be relatively expensive and effort-intensive, they should be performed only if the preliminary data indicate that there are issues that need to be resolved.

Phase 1 evaluations of the findings for each of the 38 sites included in Table 1 are provided in the following sections. Lists of potential T&E species for all of the operating commercial reactor sites are provided in Appendix A. The 27 operating power plant sites (Table 2) that have either entered the relicensing process or are expected to enter the process by 2005 are not evaluated here because they have already received, or will receive in the near future, the equivalent of a

Phase 2 evaluation as part of the license renewal SEIS. However, species lists for those sites also are included in Appendix A.

In the following site evaluations, the need for a Phase 2 or detailed follow-up, evaluation for each site is rated as LOW, MODERATE, or HIGH (or intermediate values) based on the number and types of species potentially present, the presence of critical habitats in the area, the distribution and habitat requirements of the species potentially present, and the results of the ADAMS search. This information was used in what is best described as a weight of evidence method of prioritization. No specific formula or process is used for the prioritization, sites with more lines of evidence that indicate a higher potential for adverse impacts to T&E species are rated higher than those with less evidence of adverse impact potential. The final ratings are summarized in Table 8, and each site is discussed in the following sections.

3.3.1. Arnold

Ten species were identified as potentially occurring near the Duane Arnold Energy Center. Half of those species have a reasonable potential to actually occur in the area. However, most of the species appear to occur primarily in counties north-east of the site where there are no included transmission lines. Three of the potential species are plant species that would be confined to remnant prairie areas; therefore, transmission corridors could function as refugia. The supplemental environmental report prepared in 2000 indicates that there are no T&E species on the power plant site itself. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.2. Braidwood

A total of 12 species were identified in the counties surrounding the Braidwood station. Five of these are reasonably likely to occur near the site or transmission lines. The eastern prairie fringed orchid has been found within 10 miles of the plant, Hine's emerald dragonfly and the leafy prairie-clover are known to occur in Will County where the Braidwood Station is located. Bald eagles and Indiana bats are probably primarily transients in the area. In 1996, the USFWS indicated that the Lakeside daisy and Mead's milkweed were also known to occur in Will County. However, other documentation suggests that neither of these species currently occurs in the site vicinity (see Appendix B.1). Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

Table 8. Priorities For Phase 2 Threatened or Endangered Species Evaluations	
Site	**Priority**
Arnold	Low
Braidwood	Moderate
Byron	Moderate
Callaway	Low
Clinton	Low
Comanche Peak	Moderate
Cooper	Moderate - High
Crystal River	High
Diablo Canyon	High
Fermi	Low
Fitzpatrick	Low
Grand Gulf	Low
Harris	High
Hope Creek	Moderate
Indian Point	Low
Kewaunee	Moderate - Low
La Salle	Moderate
Limerick	Low
Monticello	Moderate - Low
Oyster Creek	Moderate
Palisades	Moderate - Low
Palo Verde	Moderate - High
Perry	Moderate
Prairie Island	Moderate
River Bend	Moderate
Salem	Moderate - High
San Onofre	High
Seabrook	Low
Sequoyah	Moderate - Low
South Texas	Moderate - High
Susquehanna	Low
Three Mile Island	Moderate - Low
Vermont Yankee	Low
Vogtle	High
Waterford	Low
Watts Bar	Low
WNP-2	Moderate
Wolf Creek	Moderate

3.3.3. Byron

Eleven species were identified as potentially occurring in the counties surrounding Byron Station. However, only four of these have a reasonable potential to be affected. The prairie bush clover is known from Ogle County where Byron Station is located, and the eastern prairie fringed orchid is known to occur in the general vicinity. Bald eagles and Indiana bats are likely transients or winter residents. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.4. Callaway

A total of 14 species were identified by GEn&SIS in counties within 50 miles of the Callaway site. Of these, only four are considered likely in the area. Three of these (bald eagle, Indiana bat, and gray bat) are not likely to be adversely affected by operations except potentially in areas were transmission lines cross streams. The fourth, the Niangua darter, has critical habitat designated in nearby counties, but is unlikely to occur in the Missouri river near the plant site. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.5. Clinton

Eight species were identified by Gen&SIS in the counties within 50 miles of the Clinton plant. Of these, only two (bald eagle and Indiana bat) have a reasonable potential of occurring near the plant. The supplemental environmental report prepared in 2001 indicated that there were no T&E species at the plant site. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW. The site will be evaluated during review of an early site permit application which has recently been submitted for a new reactor unit at this site.

3.3.6. Comanche Peak

A total of six species were identified by GEn&SIS, all of them birds. Whooping cranes may migrate near the area and bald eagles are likely transients. Breeding areas for both the golden cheeked warbler and the black-capped vireo occur in Sommervell County where the Comanche Peak plant is located. Maintenance of transmission line rights-of-way could adversely affect these species. However, the transmission lines are short (14 miles total). Overall, the need for a Phase 2 follow-up evaluation to T&E species appears to be MODERATE.

3.3.7. Cooper

Six of the 10 species identified by GEn&SIS have a reasonable potential of occurrence near Cooper Station. The piping plover and least tern could use portions of the Missouri River near the site for nesting and whooping cranes may migrate through the area. Eagles are known to

winter in the area, and might nest in the vicinity. Pallid sturgeon occur in the area. The transmission lines are relatively long (159 miles), increasing the potential for encountering rare species. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to HIGH.

3.3.8. Crystal River

A total of 29 species were identified by GEn&SIS or other sources as potentially occurring near the Crystal River plant. Further evaluation indicates that nearly all of them are potentially affected by plant or transmission line operation and maintenance. There has already been significant interaction with NOAA Fisheries concerning the take of sea turtles at the site, and there is probably no need for additional evaluation of those species at this time. Eleven threatened or endangered plant species and several terrestrial animal species are potentially present along the relatively long (125-mile) transmission rights-of-way. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be HIGH.

3.3.9. Diablo Canyon

GEn&SIS identified 85 threatened or endangered species that could be present in the vicinity of the Diablo Canyon plant. As many as 36 of these species could be affected by operation and maintenance of the plant or transmission rights-of-way. Critical habitat for the California red-legged frog, longhorn fairy shrimp, and vernal pool fairy shrimp are traversed by one of the transmission rights-of-way, and critical habitat for the Morro bay kangaroo rat and California condor occur near the transmission lines. The transmission lines are relatively long (163 miles), traverse a variety of habitats that have a high number of rare species, such as the Carrizo Plain in eastern San Luis Obispo County and both lines terminate in the southern San Joaquin Valley in an area with a large number of rare species. Within several miles of the power plant site itself, there are several threatened or endangered plant species populations that appear to be near the transmission rights-of-way. The ADAMS review found reports of at least seven takes of live sea turtles (all green sea turtles). All these events were reported to NOAA Fisheries and to NRC in accordance with NRC event reporting guidelines. However, although it appears that all agencies were appropriately notified, and that NOAA Fisheries has not been concerned about these reports, there is no indication of a Section 7 consultation regarding these takes. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be HIGH.

3.3.10. Fermi

Four of the 10 species identified by GEn&SIS have a potential to occur near or be affected by the operation and maintenance of the Fermi plant and associated transmission lines. Of these, the eastern prairie fringed orchid is the most likely to be affected if it occurs in the transmission corridors. Bald eagles and Indiana bats are probably mainly transient in the area. There is a slight potential that the Karner blue butterfly may occur in the vicinity. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.11. Fitzpatrick

Eight species were identified as potentially occurring near the Fitzpatrick site, five of which have a reasonable potential of being affected. Designated critical habitat for the piping plover is located 10 to 20 miles east of the site. Bog turtles may inhabit wetland areas in the vicinity. Bald eagles and Indiana bats are not likely to be adversely affected by operation or maintenance of the plant or associated transmission line. The hart's-tongue fern is found in limited areas in Madison and Onondaga counties, and is thus unlikely to be affected by the site. Impacts to local T&E species will be evaluated if a license renewal application is submitted for the neighboring Nine-Mile Point plant (expected in 2004). Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.12. Grand Gulf

GEn&SIS identified 11 species at the Grand Gulf site, although one (California least tern) may be a data error. Five of the species have a reasonable potential for occurrence and/or being affected by the site. Proposed critical habitat for the Louisiana black bear is located on the other side of the Mississippi River from the plant site. The bayou darter is only found in the Bayou Pierre river system, which enters the Mississippi River just south of the Grand Gulf site. Least terns and bald eagles may be in the area, and red-cockaded woodpeckers may inhabitat pine forests in the area. The T&E species issues associated with this site will be fully evaluated during a review of an early site permit application which was recently submitted for a new reactor unit. Therefore, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species is LOW.

3.3.13. Harris

A total of 15 species were identified in the GEn&SIS database as potentially occurring near the Shearon-Harris plant. Of these, data indicate that 11 may require further evaluation. The Cape Fear shiner probably does not inhabit the reservoir used for cooling, but critical habitat is located approximately 15 to 20 miles west of the site, and at least one of the transmission rights-of-way may cross at or near the critical habitat area. The red-cockaded woodpecker has been reported on the plant site and likely occurs in many of the forested areas along the transmission rights-of-way. The transmission rights-of-way pass through or near several areas with known populations of six different rare plant species, and the only known locations of the St. Francis satyr butterfly. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be HIGH.

3.3.14. Hope Creek

Although 20 different species were identified as potentially occurring near the Hope Creek site, few of them have a reasonable potential of being adversely affected. Several species of sea turtle and the shortnose sturgeon have been reported at the site; apparently, none have been taken at the

closed-cycle cooling system Hope Creek plant (unlike the adjoining once-through system Salem plant). Several plant species and the bog turtle may inhabit shoreline areas or locations along the transmission rights-of-way. If combined with an evaluation of the Salem plants, it appears that the need for a Phase 2 follow-up evaluation of potential impacts to T&E species is MODERATE.

3.3.15. Indian Point

Although 12 species were identified in the GEn&SIS database for the Indian Point site, adverse effects to any of the species are unlikely. The transmission lines are less than 1 mile long; therefore, there is virtually no potential for adverse impacts to terrestrial species. The shortnose sturgeon probably occurs in the Hudson River, but there have been no reported takes of this species. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.16. Kewaunee

Eight species were identified as potentially occurring near the Kewaunee site. Critical habitat for the piping plover is located several miles south of the plant site, but it is unclear if this species regularly occurs in the area. Populations of Pitcher's thistle have been reported relatively near the site but not in Kewaunee County. Hine's emerald dragonfly has been reported in Kewaunee County. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to LOW.

3.3.17. La Salle

A total of 10 species were identified as potentially occurring near the La Salle plant site. Four of these are potentially affected. The original critical habitat designation for the Indiana bat includes the Black Ball Mine, located approximately 10 miles east of the site. The decurrent false aster and the prairie bush clover have a potential to occur within or near the transmission rights-of-way, and the Hine's emerald dragonfly may occur at the eastern end of the transmission rights-of-way. Bald eagles winter in the plant vicinity. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.18. Limerick

Although 13 species were identified by GEn&SIS in the general vicinity of the Limerick plant, only the bog turtle is likely to be found near the plant or transmission lines. The bald eagle may occur occasionally as a transient. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.19. Monticello

GEn&SIS identified eight species as potentially occurring near the Monticello site. Few of these are likely to be affected. The bald eagle is known to nest within approximately 2 miles of the site, and the area is within a proposed recovery unit area for the Karner blue butterfly. The site is within the historical range of the western prairie fringed orchid, the Higgin's eye pearly mussel, and the winged mapleleaf mussel, but there appears to be no known populations of these species remaining near the plant site or transmission lines. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to LOW.

3.3.20. Oyster Creek

At least 9 of the 13 species identified in the counties near the Oyster Creek site are potentially affected by the reactor or the relatively short (11-mile) transmission line. Several species of sea turtles have been taken at the site, and Section 7 consultations have occurred at least twice, the last being completed in 2001. The ranges of several rare plant species and the bog turtle includes the general vicinity of the Oyster Creek site. There are significant amounts of marshland in the area, but because the transmission rights-of-way are short, the potential for adverse impacts is probably low. Critical habitat for the piping plover exists on the coastal islands east of the site, but not on the western shore of Barnegat Bay where the facility is located. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.21. Palisades

GEn&SIS identified 10 species in the counties surrounding the Palisades site, of which Pitcher's thistle and Mitchell's satyr butterfly are most likely to be found near the plant or transmission line rights-of-way. Pitcher's thistle is restricted to dune habitats on the shore of Lake Michigan and Lake Huron. Other species with a small potential to occur within the area include the small whorled pogonia, copperbelly water snake, and the bald eagle. The transmission corridors are moderately short at 41 miles. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to LOW.

3.3.22. Palo Verde

GEn&SIS identified 22 species as occurring in the counties within a 50-mile radius of the site. Many of these potentially could be found near the site or the transmission corridors. The 50-mile radius is probably not adequate for this site, because the transmission rights-of-way are extremely long (585 miles) and extend well into New Mexico. Of the species listed, there is a strong potential that the transmission lines cross habitat used by the cactus ferruginous pygmy owl, the Mexican spotted owl, the southwestern willow flycatcher, and other birds. They probably cross waterways used by several species of threatened or endangered fish. However, transmission rights-of-way in this area probably do not require significant maintenance in terms

of mowing, trimming, or clearing; therefore, impacts may be minimal. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to HIGH.

3.3.23. Perry

Three of the seven species identified by GEn&SIS are considered potentially affected by operation of the Perry plant. There is critical habitat for the piping plover approximately 5 miles west of the plant site. The northern wild monkshood is known from Portage County, which is where the terminus of the transmission corridor is located. Bald eagles may be transient in the area. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.24. Prairie Island

Several of the nine GEn&SIS identified species are potentially affected by the operation of the Prairie Island plant or associated transmission lines. The plant site is within a recovery unit area for the Karner blue butterfly, and bald eagles are known to inhabit the area. The prairie bush clover is known to occur in Goodhue County where the Prairie Island facility is located, and Leedy's roseroot is known from an adjacent county. The Higgin's eye pearlymussel has not been reported at the plant site but is known to occur in that section of the Mississippi River and upstream in the St. Croix River. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.25. River Bend

GEn&SIS identified 10 species in the general vicinity of the River Bend site, and four of these are potentially affected by the plant. Louisiana black bears may be in the area, but the proposed critical habitat is approximately 20 to 25 miles west of the plant site. Pallid sturgeon may be in the Mississippi River, but impacts are likely to be small because of the plants closed-cycle cooling system. Red-cockaded woodpeckers and bald eagles may be found in the area. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.26. Salem

Sixteen species were identified by GEn&SIS, and an additional four species are known to occur at the Salem site. Sea turtles (especially loggerhead) and shortnose sturgeon have been regularly taken at the site, and Section 7 consultations apparently were concluded in 1993, although regular reports on takes have continued since that time. Presumably, additional consultation regarding sea turtles and sturgeon is not needed at this time, although this assumption should be confirmed. Several T&E plant species and the bog turtle potentially occur along the

transmission rights-of-way. Especially if it is combined with an evaluation of the adjacent Hope Creek plant, it appears that the need for a Phase 2 follow up evaluation of potential impacts to T&E species is MODERATE to HIGH.

3.3.27. San Onofre

GEn&SIS identified more species in the vicinity of the San Onofre site (99 total) than at any other operating nuclear reactor site, and approximately one fourth of these species are potentially affected by plant and transmission line operation and maintenance. Designated or proposed critical habitats for the arroyo southwestern toad, coastal California gnatcatcher, southwest willow flycatcher, least Bell's vireo, San Diego fairy shrimp, Riverside fairy shrimp, and tidewater goby are located at or adjacent to the plant site, or within the transmission corridor within 5 miles of the plant site. Other species known to exist at the plant site or within the transmission corridors very near the site are the brown pelican, western snowy plover, pacific pocket mouse, thread-leaved brodiaea, San Diego button celery, and prostrate navarretia. NOAA Fisheries recently has contacted the NRC regarding the take of endangered sea turtles, as well as harbor seals and sea lions that are protected under the Marine Mammal Protection Act. At least 25 sea turtles (mainly green) and nearly 400 seals and sea lions have been taken at the site since 1988. These takes have not been reported to the NRC, and there has been no consultation with NOAA Fisheries regarding this issue. This is a high priority for follow-up action. In addition to the species mentioned above, a number of other threatened or endangered species that could be affected by San Onofre or the maintenance of the associated transmission rights-of-way. Therefore, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species is HIGH.

3.3.28. Seabrook

Data for the Seabrook site were not available from GEn&SIS. However, based on the previous analysis (Sackschewsky 1997) and the evaluation of species distributions, the species most likely to be affectedat the site are shortnose sturgeon, leatherback sea turtle, and the small-whorled pogonia. Although seals have been entrapped in the cooling system, takes of turtles or sturgeon have never been reported. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.29. Sequoyah

The Sequoyah plant, along with Watts Bar and Browns Ferry, is located in an area that historically had extremely high diversity of freshwater species, especially clams. Of the 59 threatened or endangered species identified by the GEn&SIS database as being in the vicinity of the Sequoyah plant, 25 are clams and 11 are fish. Most of these species are currently restricted to very small areas, and some are likely extinct or are not reproducing. Of the 59 species, 19 were determined to have a potential of occurring near the site or the transmission rights-of-way

but very few are likely to be adversely affected. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to LOW.

3.3.30. South Texas

Eleven species were identified as potentially occurring in the vicinity of the South Texas site. Most of these have the potential to occur near the site or transmission lines. Additionally, the GEn&SIS search radius may have been insufficient to capture all the species potentially affected by the 398 miles of transmission line rights-of-way. Near the plant site, several sea turtles likely occur, and piping plover wintering habitat exists on the outer banks or dune islands east of the site. However, because of the design and layout of the cooling system, these species are not likely to be affected by plant operations. Whooping cranes, eagles, brown pelicans, and Attwater's prairie chicken are potentially affected by transmission line operation and maintenance. Additional species, such as the golden cheek warbler or black-capped vireo are likely to occur in or near the corridors further from the plant. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE to HIGH.

3.3.31. Susquehanna

Gen&SIS identified only four species in the vicinity of the Susquehanna plant. None of these are likely to be affected by plant or transmission line operations. Bald eagles and Indiana bats may be transient in the area, and bog turtles have a slight chance of being in the area. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.32. Three Mile Island

Four of the 10 threatened or endangered species identified by GEn&SIS in the vicinity of the Three Mile Island plant have a reasonable potential of being affected by plant or transmission line operation and maintenance. Bald eagles nest both upstream and downstream of the Three Mile Island plant, but apparently do not use the site vicinity to a significant degree. Indiana bats are likely to be transient in the area. Bog turtles could inhabit wetland areas within the transmission line corridors and the northeastern bulrush is known to occur in Dauphin County where the Three Mile Island Plant is located. Overall, the need for a Phase 2 follow-up evaluation of T&E species appears to be MODERATE to LOW.

3.3.33. Vermont Yankee

None of the nine species of threatened or endangered species identified by GEn&SIS in the counties surrounding the Vermont Yankee site are likely to be affected by the plant operations. The bald eagle and Indiana bat are probably in the area at least occasionally, and the northeastern bulrush and bog turtle have a slight potential to be in wetlands in the area. One species not

identified by GEn&SIS, the dwarf wedge mussel, has been reported from the area, and thus, could be affected. However, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.34. Vogtle

Approximately one-half of the 19 threatened or endangered species identified by GEn&SIS in the counties surrounding the Vogtle plant have a reasonable potential of be found near the site or being affected by plant and transmission line operations and maintenance. Wood storks and red-cockaded woodpeckers are known to occur in the area, and shortnose sturgeon have been observed in the Savannah River. Several plant species as well as the flatwoods salamander and eastern indigo snake might be found in the transmission line rights-of-way. The transmission lines are very long (557 miles); therefore, there are probably a number of species potentially affected that were not identified within the 50-mile GEn&SIS search radius. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be HIGH.

3.3.35. Waterford

Although 4 of the 13 species identified by GEn&SIS are considered to potentially occur near the Waterford site, none are likely to be adversely affected. The surrounding area is more industrialized than at most other commercial nuclear power plant sites, and the transmission lines are relatively short, at 23.5 miles. Pallid sturgeon potentially inhabit the Mississippi River near the plant, but apparently there has never been any reported takes of this species at this site. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.36. Watts Bar

Like Sequoyah and Browns Ferry, the Watts Bar plant is located in an area of unusually high natural diversity of mussels and other aquatic life. Little of this native diversity remains except in a few specific stream reaches. Of the 60 species identified by GEn&SIS as potentially inhabiting counties near the Watts Bar plant, 27 are clams, 12 are fish, and 3 are snails. Essentially none are likely to be in the vicinity of the plant. The most likely are the snail darter and the fanshell, neither of which is expected in the Tennessee River at the plant site. No distribution data were available for many of the clam species, and several of these may be extinct or non-reproducing. The transmission lines are long (300 miles), increasing the potential for impacts to terrestrial species, but the likely animal species (bald eagle, gray and Indiana bats, red-cockaded woodpecker) probably are transitory in the area. Two plant species are potentially affected by transmission corridor maintenance. The initial operating license for the Watts Bar plant was issued in 1996, and the environmental review included an evaluation of T&E species issues at that time. There is no indication that the issues have changed significantly since the time the operating license was issued. Therefore, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be LOW.

3.3.37. WNP-2

GEn&SIS identified nine species as potentially inhabiting the area around the WNP-2 or Columbia Generating Station site. Of these, several are known to occur at the site. The bald eagle winters in the vicinity, but has not been observed to successfully nest in the area. Upper Columbia River steelhead and fall Chinook salmon inhabit the Columbia River at the plant site. Sockeye salmon in the area are probably not of protected ecologically significant units (ESU) and bull trout have occasionally been reported in the area, but are probably individuals that have been washed downstream in the spring run-off and are not resident. Although the steelhead and Chinook salmon are known to inhabit the Hanford Reach of the Columbia River, no record of a Section 7 consultation regarding these species was found. There has been informal consultation regarding these species with the DOE, and a management plan for these species on the Hanford Site is available. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

3.3.38. Wolf Creek

Nine species were identified by GEn&SIS in the counties within 50 miles of the Wolf Creek site. The Neosho madtom and Topeka shiner may inhabit streams in the immediate vicinity of the plant, and the whooping crane may migrate through the area. The western prairie fringe orchid historically occurred in Coffey County where the Wolf Creek plant is located, and is still extant in several of the counties toward the terminus of at least one of the transmission rights-of-way. Mead's milkweed is currently known to inhabit Coffey and the several surrounding counties. Bald eagles have been reported to nest at Wolf Creek Reservoir. Overall, the need for a Phase 2 follow-up evaluation of potential impacts to T&E species appears to be MODERATE.

4. SUMMARY AND CONCLUSIONS

4.1. Summary of Phase 2 Priorities

Based on the available data, summarized in Section 3, the sites with the highest priority for follow-up or Phase 2 T&E species evaluations are Diablo Canyon, San Onofre, Shearon-Harris, and Vogtle, followed by Cooper, Palo Verde, and South Texas (Table 9). Crystal River and Salem are also considered to be high and moderate to high priority sites, respectively, primarily because of terrestrial concerns, as both have current incidental take permits for aquatic biota. Of the 38 sites evaluated, 18 were considered to be of LOW or MODERATE-to-LOW priority, 11 were considered to be MODERATE priority, 4 were MODERATE-to-HIGH priority, and 5 were considered to be HIGH priority sites.

4.2. Procedure for Phase 2 Evaluations

Phase 2 evaluations should proceed in a manner similar to the T&E species reviews conducted in support of the preparation of a license renewal SEIS. Steps in the process will include: data compilation, licensee interactions and data requests, informal meetings with USFWS or NOAA Fisheries, and summarization.

Data compilation entails gathering pertinent information about the species potentially present, such as habitat preferences, detailed distribution information, etc.; maps of vegetation or habitat areas; maps of the facility and transmission rights-of-way; and other background materials. These data are then used for a preliminary assessment of the primary site issues and as the basis for preparing information requests to be sent to the licensee and the resource agencies.

Licensee interactions include the exchange of information requests and responses, teleconferences to discuss more complex issues, and if necessary, site visits by the evaluating personnel. Information requests may include but are not limited to requests about field surveys conducted for species of concern, information about takes of species of concern at the site, site procedures for detecting and reporting takes of T&E species, operation and maintenance procedures for key systems such as cooling intake structures or transmission line rights-of-way, environmental effects data such as typically found in national Pollutant Discharge Elimination System (NPDES) permits or other documentation.

Agency interactions include written requests for species information, and direct discussions either via telephone or in person to discuss potential impacts of plant and transmission right-of-way operations and maintenance on T&E species. These will usually remain at an informal level. However, it is possible that issue may arise that will require more formal consultation to fully address the issue to both parties satisfaction.

Once the data have been gathered and the interactions with licensees and resource agencies have been completed, the results typically will be summarized in a brief summary report. In a few cases, a formal biological assessment may be appropriate.

Table 9. Sites Grouped By Priority Level For Phase 2 Follow-Up Evaluations	
Highest Priority Sites	
Crystal River	San Onofre
Diablo Canyon	Vogtle
Harris	
Moderate - High Priority Sites	
Cooper	Salem
Palo Verde	South Texas
Moderate Priority Sites	
Braidwood	Perry
Byron	Prairie Island
Comanche Peak	River Bend
Hope Creek	WNP-2
La Salle	Wolf Creek
Oyster Creek	
Moderate - Low Priority Sites	
Kewaunee	Sequoyah
Monticello	Three Mile Island
Palisades	
Lowest Priority Sites	
Arnold	Limerick
Callaway	Seabrook
Clinton	Susquehanna
Fermi	Vermont Yankee
Fitzpatrick	Waterford
Grand Gulf	Watts Bar
Indian Point	

5. REFERENCES

Sackschewsky, M. R. 1997. Threatened and Endangered Species Evaluation for 75 Licensed Commercial Nuclear Power Generating Plants. PNNL-11524. Pacific Northwest National Laboratory. Richland, WA.

U.S. Nuclear Regulatory Commission (NRC). 1976. Regulatory Guide 4.2. *Preparation of Environmental Reports for Nuclear Power Station*s, Rev. 2. U.S. Nuclear Regulatory Commission, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1979. *Environmental Standard Review Plans for the Environmental Review of Construction Permit Applications for Nuclear Power Plants*. NUREG-0555. U.S. Nuclear Regulatory Commission, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1996. Generic Environmental Impact Statement for License Renewal of Nuclear Plants. NUREG-1437. U.S. Nuclear Regulatory Commission, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1999a. *Standard Review Plans for Environmental Reviews for Nuclear Power Plants*. NUREG-1555. U.S. Nuclear Regulatory Commission, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1999b. *Standard Review Plans for Environmental Reviews for Nuclear Power Plants. Supplement 1: Operating License Renewal*. NUREG-1555 Supplement 1. . U.S. Nuclear Regulatory Commission, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2000. Regulatory Guide 4.2, Supplement 1. *Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses*. U.S. Nuclear Regulatory Commission, Washington, D.C.

APPENDIX A

SPECIES LISTING BY SITE

2003 GEn&SIS SPECIES LIST FOR: *ARKANSAS*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Birds	Sterna antillarum	Tern, least	E		**Possible**
Clams	Lampsilis powelli	Fatmucket, Arkansas	T		**Low**
Clams	Lampsilis streckeri	Pocketbook, speckled	E		**Low**
Clams	Leptodea leptodon	Scaleshell (mussel)	E	**X**	**Low**
Insects	Nicrophorus americanus	Beetle, American burying (=giant	E		**Low**
Mammals	Myotis grisescens	Bat, gray	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Geocarpon minimum	None	T		**Low**
Plants	Ptilimnium nodosum	Harperella	E		**Low**
Snails	Mesodon magazinensis	Shagreen, Magazine Mountain	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *ARNOLD*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Lampsilis higginsii	Pearlymussel, Higgins' eye	E		**Low**
Clams	Potamilus capax	Pocketbook, fat	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Possible**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Low**
Snails	Discus macclintocki	Snail, Iowa Pleistocene	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BEAVER VALLEY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Epioblasma torulosa rangiana	Rifflеshell, Northern	E		**Low**
Clams	Pleurobema clava	Clubshell	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BRAIDWOOD*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Low**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asclepias meadii	Mead's milkweed	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Low**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BROWNS FERRY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Low**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Conradilla caelata	Pearlymussel, birdwing	E		**Low**
Clams	Dromus dromas	Pearlymussel, dromedary	E	**X**	**No data**
Clams	Epioblasma brevidens	Cumberlandian combshell	E	**X**	**Low**
Clams	Epioblasma capsaeformis	Oyster mussel	E		**Low**
Clams	Epioblasma florentina florentina	Pearlymussel, yellow-blossom	E	**X**	**Low**
Clams	Epioblasma obliquata obliquata	Pearlymussel, purple cat's paw	E	**X**	**Low**
Clams	Epioblasma torulosa torulosa	Pearlymussel, tubercled-blossom	E	**X**	**No data**
Clams	Epioblasma turgidula	Pearlymussel, turgid-blossom	E	**X**	**Low**
Clams	Fusconaia cor	Pigtoe, shiny	E		**No data**
Clams	Fusconaia cuneolus	Pigtoe, fine-rayed	E		**No data**
Clams	Hemistena lata	Pearlymussel, cracking	E		**Possible**
Clams	Lampsilis altilis	Pocketbook, fine-lined	T		**Low**
Clams	Lampsilis orbiculata	Pearlymussel, pink mucket	E		**No data**
Clams	Lampsilis perovalis	Mucket, orange-nacre	T		**Low**
Clams	Lampsilis virescens	Lampmussel, Alabama	E		**No data**
Clams	Medionidus acutissimus	Moccasinshell, Alabama	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BROWNS FERRY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Clams	Medionidus parvulus	Moccasinshell, Coosa	E		**Low**
Clams	Obovaria retusa	Mussel, ring pink (=golf stick p	E		**Low**
Clams	Plethobasus cicatricosus	Pearlymussel, white wartyback	E		**No data**
Clams	Plethobasus cooperianus	Pearlymussel, orange-foot pimple	E		**No data**
Clams	Pleurobema clava	Clubshell	E	**X**	**Low**
Clams	Pleurobema furvum	Pigtoe, dark	E		**Low**
Clams	Pleurobema perovatum	Clubshell, ovate	E		**Low**
Clams	Pleurobema plenum	Pigtoe, rough	E		**No Data**
Clams	Ptychobranchus greeni	Kidneyshell, triangular	E		**Low**
Clams	Quadrula fragosa	Mussel, winged mapleleaf	E		**Low**
Clams	Quadrula intermedia	Pearlymussel, Cumberland monkeyf	E		**No Data**
Clams	Toxolasma cylindrellus	Pearlymussel, pale lilliput	E		**No Data**
Clams	Villosa trabalis	Pearlymussel, Cumberland bean	E	**X**	**No Data**
Crustacean	Palaemonias alabamae	Shrimp, Alabama cave	E		**Possible**
Fishes	Etheostoma boschungi	Darter, slackwater	T		**Possible**
Fishes	Etheostoma wapiti	Darter, boulder (=Elk River)	E		**Possible**
Fishes	Hybopsis monacha	Chub, spotfin (=turquoise shiner	T		**Low**
Fishes	Notropis albizonatus	Shiner, Palezone	E	**X**	**Low**
Fishes	Notropis cahabae	Shiner, Cahaba	E	**X**	**Low**
Fishes	Percina tanasi	Darter, snail	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BROWNS FERRY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Fishes	Speoplatyrhinus poulsoni	Cavefish, Alabama	E		**Possible**
Mammals	Myotis grisescens	Bat, gray	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Apios priceana	Price's potato-bean	T		**Possible**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T		**Possible**
Plants	Clematis morefieldii	Morefield's leather-flower	E		**Possible**
Plants	Dalea foliosa	Leafy prairie-clover	E		**Possible**
Plants	Helianthus eggertii	Sunflower, Eggert's	T	**X**	**Low**
Plants	Lesquerella lyrata	Lyrate bladderpod	T		**Low**
Plants	Ptilimnium nodosum	Harperella	E		**Possible**
Plants	Sagittaria secundifolia	Kral's water-plantain	T		**Low**
Plants	Sarracenia oreophila	Green pitcher-plant	E		**Possible**
Plants	Thelypteris pilosa alabamensis	Alabama streak-sorus fern	T		**Low**
Plants	Xyris tennesseensis	Tennessee yellow-eyed grass	E		**Low**
Reptiles	Sternotherus depressus	Turtle, flattened musk	T		**Low**
Snails	Athearnia anthonyi	Riversnail, Anthony's	E		**Possible**
Snails	Campeloma decampi	Slender campeloma (snail)	E	**X**	**Possible**
Snails	Leptoxis plicata	Plicate rocksnail	E	**X**	**Low**
Snails	Pyrgulopsis pachyta	Armored (=thick-shelled) marston	E	**X**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BRUNSWICK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Poss.-CH**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Yes**
Fishes	Menidia extensa	Silverside, Waccamaw	T		**Possible**
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		**Possible**
Plants	Amaranthus pumilus	Seabeach amaranth	T		**Possible**
Plants	Carex lutea	Golden Sedge	E	**X**	**Possible**
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		**Low**
Plants	Lindera melissifolia	Pondberry	E		**Possible**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Possible**
Plants	Oxypolis canbyi	Canby's dropwort	E		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Low**
Plants	Thalictrum cooleyi	Cooley's meadowrue	E		**Possible**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Yes**
Reptiles	Chelonia mydas	Turtle, green sea	E	**NGS**	**Yes**
Reptiles	Dermochelys coriacea	Turtle, leatherback sea	E	**NGS**	**Possible**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BRUNSWICK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Yes**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *BYRON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Cyprogenia stegaria	Fanshell	E		**Low**
Clams	Lampsilis higginsii	Pearlymussel, Higgins' eye	E		**Low**
Clams	Potamilus capax	Pocketbook, fat	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**
Snails	Discus macclintocki	Snail, Iowa Pleistocene	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CALLAWAY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Lampsilis orbiculata	Pearlymussel, pink mucket	E		**No data**
Clams	Leptodea leptodon	Scaleshell (mussel)	E	**X**	**Low**
Clams	Potamilus capax	Pocketbook, fat	E		**Low**
Fishes	Etheostoma nianguae	Darter, Niangua	T		**Poss. CH**
Fishes	Notropis topeka	Topeka shiner	E	**X**	**Low**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Low**
Insects	Nicrophorus americanus	Beetle, American burying (=giant	E		**Low**
Mammals	Myotis grisescens	Bat, gray	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**
Plants	Trifolium stoloniferum	Running buffalo clover	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CALVERT CLIFFS*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Yes**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Possible**
Crustacean	Stygobromus hayi	Amphipod, Hay's Spring	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Possible**
Insects	Cicindela dorsalis dorsalis	Beetle, northeastern beach tiger	T		**Yes**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Yes**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Possible**
Plants	Helonias bullata	Swamp pink	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Oxypolis canbyi	Canby's dropwort	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CATAWBA*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Clams	Lasmigona decorata	Heelsplitter, Carolina	E		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Amphianthus pusillus	Little amphianthus	T		**Possible**
Plants	Echinacea laevigata	Smooth coneflower	E		**Possible**
Plants	Geum radiatum	Spreading avens	E		**Low**
Plants	Gymnoderma lineare	Lichen, rock gnome	E		**Low**
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		**Possible**
Plants	Hexastylis naniflora	Dwarf-flowered heartleaf	T		**Possible**
Plants	Hudsonia montana	Mountain golden heather	T		**Low**
Plants	Isoetes melanospora	Black-spored quillwort	E		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Liatris helleri	Heller's blazingstar	T		**Low**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Low**
Plants	Oxypolis canbyi	Canby's dropwort	E	**NGS**	**Low**
Plants	Rhus michauxii	Michaux's sumac	E	**NGS**	**Low**
Plants	Sisyrinchium dichotomum	White irisette	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CLINTON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Plethobasus cicatricosus	Pearlymussel, white wartyback	E		**No data**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asclepias meadii	Mead's milkweed	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *COMANCHE PEAK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Dendroica chrysoparia	Warbler, golden-cheeked	E		**Possible**
Birds	Grus americana	Crane, whooping	E		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Birds	Vireo atricapillus	Vireo, black-capped	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *COOK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Epioblasma torulosa torulosa	Pearlymussel, tubercled-blossom	E		**No data**
Clams	Pleurobema clava	Clubshell	E		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Insects	Neonympha mitchellii mitchellii	Butterfly, Mitchell's satyr	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**
Reptiles	Nerodia erythrogaster neglecta	Northern copperbelly water snake	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *COOPER*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Grus americana	Crane, whooping	E		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Sterna antillarum	Tern, least	E		**Possible**
Fishes	Notropis topeka	Topeka shiner	E	**X**	**Low**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Possible**
Insects	Nicrophorus americanus	Beetle, American burying (=giant	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Low**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CRYSTAL RIVER*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Aphelocoma coerulescens coerules	Jay, Florida scrub	T		**Possible**
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Birds	Rostrhamus sociabilis plumbeus	Kite, Everglade snail	E		**Low**
Crustacean	Palaemonetes cummingi	Shrimp, Squirrel Chimney Cave (=Florida	T		**Low**
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		**Possible**
Mammals	Microtus pennsylvanicus dukecamp	Vole, Florida salt marsh	E		**Low**
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		**Yes**
Plants	Bonamia grandiflora	Florida bonamia	T		**Possible**
Plants	Campanula robinsiae	Brooksville (=Robins') bellflowe	E		**Possible**
Plants	Chionanthus pygmaeus	Pygmy fringe-tree	E		**Possible**
Plants	Dicerandra cornutissima	Longspurred mint	E		**Possible**
Plants	Eriogonum longifolium gnaphalifc	Scrub buckwheat	T		**Possible**
Plants	Justicia cooleyi	Cooley's water-willow	E		**Possible**
Plants	Nolina brittoniana	Britton's beargrass	E		**Possible**
Plants	Paronychia chartacea	Papery whitlow-wort	T		**Possible**
Plants	Polygala lewtonii	Lewton's polygala	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *CRYSTAL RIVER*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Prunus geniculata	Scrub plum	E		**Possible**
Plants	Warea amplexifolia	Wide-leaf warea	E		**Possible**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T	**NGS**	**Yes**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Yes**
Reptiles	Dermochelys coriacea	Turtle, leatherback sea	E	**NGS**	**Yes**
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		**Possible**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Yes**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Yes**
Reptiles	Neoseps reynoldsi	Skink, sand	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DAVIS-BESSE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Epioblasma torulosa rangiana	Rifflеshell, Northern	E		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**
Reptiles	Nerodia sipedon insularum	Lake Erie water snake	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DIABLO CANYON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Ambystoma californiense	California tiger salamander	E	X	Possible
Amphibians	Ambystoma macrodactylum croceum	Salamander, Santa Cruz long-toed	E		Low
Amphibians	Bufo microscaphus californicus	Toad, Arroyo southwestern	E		Low
Amphibians	Rana aurora draytonii	California red-legged frog	T		Yes - CH
Birds	Brachyramphus marmoratus marmora	Murrelet, marbled	T		Low
Birds	Charadrius alexandrinus nivosus	Plover, western snowy	T		Possible
Birds	Charadrius montanus	Mountain plover	PT	X	Possible
Birds	Empidonax traillii extimus	Flycatcher, southwestern willow	E	X	Possible
Birds	Gymnogyps californianus	Condor, California	E		Yes - CH
Birds	Haliaeetus leucocephalus	Eagle, bald	T		Possible
Birds	Pelecanus occidentalis	Pelican, brown	E		Possible
Birds	Rallus longirostris levipes	Rail, light-footed clapper	E		No data
Birds	Rallus longirostris obsoletus	Rail, California clapper	E		No data
Birds	Sterna antillarum browni	Tern, least	E		Possible
Birds	Vireo bellii pusillus	Vireo, least Bell's	E		Possible
Crustacean	Branchinecta longiantenna	Fairy shrimp, longhorn	E		Yes - CH
Crustacean	Branchinecta lynchi	Fairy shrimp, vernal pool	T		Yes - CH
Fishes	Eucyclogobius newberryi	Goby, tidewater	E		Possible
Fishes	Gasterosteus aculeatus williamso	Stickleback, unarmored threespin	E		Low
Fishes	Oncorhynchus mykiss	Steelhead trout	E,T	X	Low

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DIABLO CANYON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Insects	Euphilotes enoptes smithi	Butterfly, Smith's blue	E		**Low**
Insects	Euproserpinus euterpe	Moth, Kern primrose sphinx	T		**Low**
Mammals	Arctocephalus townsendi	Seal, guadalupe fur	T		**Low?**
Mammals	Dipodomys heermanni morroensis	Kangaroo rat, Morro Bay	E		**Poss. - CH**
Mammals	Dipodomys ingens	Kangaroo rat, giant	E		**Possible**
Mammals	Dipodomys nitratoides nitratoide	Kangaroo rat, Tipton	E		**Possible**
Mammals	Enhydra lutris nereis	Otter, Southern sea	T		**Possible**
Mammals	Sorex ornatus relictus	Buena Vista Lake ornate shrew	E		**Possible**
Mammals	Vulpes macrotis mutica	Fox, San Joaquin kit	E		**Possible**
Plants	Arabis hoffmannii	Rock-cress, Hoffmann's	E	**X**	**Low**
Plants	Arctostaphylos confertiflora	Manzanita, Santa Rosa Island	E	**X**	**Low**
Plants	Arctostaphylos morroensis	Manzanita, Morro	T		**Possible**
Plants	Arenaria paludicola	Marsh sandwort	E		**Low**
Plants	Astragalus tener titi	Rattleweed, coastal dunes	E	**X**	**Low**
Plants	Berberis pinnata insularis	Barberry, island	E	**X**	**Low**
Plants	Castilleja mollis	Paintbrush, soft-leaved	E	**X**	**Low**
Plants	Caulanthus californicus	California jewelflower	E		**Possible**
Plants	Chlorogalum purpureum	Amole, purple	T		**Low**
Plants	Chorizanthe pungens pungens	Spineflower, Monterey	T		**Low**
Plants	Chorizanthe robusta	Spineflower, Robust (incl. Scotts	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DIABLO CANYON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Cirsium fontinale fontinale	Fountain thistle	E	**X**	**Low**
Plants	Cirsium fontinale obispoense	Thistle, Chorro Creek bog	E		**Yes**
Plants	Cirsium loncholepis	Thistle, La Graciosa	E		**Low**
Plants	Clarkia speciosa immaculata	Clarkia, Pismo	E		**Yes**
Plants	Cordylanthus maritimus maritimus	Salt marsh bird's-beak	E		**Possible**
Plants	Cupressus goveniana goveniana	Cypress, Gowen	T	**X**	**Low**
Plants	Dudleya cymosa marcescens	Dudleya, Marcescent	T	**X**	**Low**
Plants	Dudleya nesiotica	Liveforever, Santa Cruz Island	T	**X**	**Low**
Plants	Dudleya setchellii	Santa Clara Valley dudleya	E		**Low**
Plants	Dudleya traskiae	Santa Barbara Island liveforever	E		**Low**
Plants	Eremalche kernensis	Kern mallow	E		**Possible**
Plants	Eriastrum hooveri	Hoover's woolly-star	T		**Possible**
Plants	Eriodictyon altissimum	Mountain balm, Indian Knob	E		**Yes**
Plants	Eriodictyon capitatum	Yerba santa, Lompoc	E	**X**	**Low**
Plants	Erysimum menziesii	Menzies' wallflower	E		**Low**
Plants	Galium buxifolium	Bedstraw, island	E	**X**	**Low**
Plants	Gilia tenuiflora arenaria	Monterey gilia	E		**Low**
Plants	Gilia tenuiflora hoffmannii	Gilia, Hoffmann's	E	**X**	**Low**
Plants	Hemizonia increscens villosa	Tarweed, Gaviota	E	**X**	**Low**
Plants	Holocarpha macradenia	Tarweed, Santa Cruz	T	**X**	**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DIABLO CANYON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Lasthenia conjugens	Goldfields, Contra Costa	E		**Low**
Plants	Layia carnosa	Beach layia	E		**Low**
Plants	Lembertia congdonii	San Joaquin wooly-threads	E		**Possible**
Plants	Lupinus nipomensis	Lupine, Nipomo Mesa	E		**Low**
Plants	Lupinus tidestromii	Clover lupine	E		**Low**
Plants	Malacothamnus fasciculatus nesio	Bush-mallow, Santa Cruz Island	E	**X**	**Low**
Plants	Malacothrix indecora	Malocothrix, Santa Cruz Island	E	**X**	**Low**
Plants	Malacothrix squalida	Malacothrix, island	E	**X**	**Low**
Plants	Navarretia leucocephala pauciflo	Navarretia, few-flowered	E		**Low**
Plants	Navarretia leucocephala plieanth	Navarretia, many-flowered	E		**Low**
Plants	Opuntia treleasei	Bakersfield cactus	E		**Possible**
Plants	Parvisedum leiocarpum	Stonecrop, Lake County	E		**Low**
Plants	Phacelia insularis insularis	Phacelia, northern island	E	**X**	**Low**
Plants	Piperia yadonii	Piperia, Yadon's	E	**X**	**Low**
Plants	Potentilla hickmanii	Cinquefoil, Hickman's	E	**X**	**Low**
Plants	Rorippa gambellii	Gambel's watercress	E		**Low**
Plants	Suaeda californica	Seablite, California	E		**Possible**
Plants	Thysanocarpus conchuliferus	Fringepod, Santa Cruz Island	E	**X**	**Low**
Plants	Trifolium trichocalyx	Clover, Del Monte	E	**X**	**Low**
Reptiles	Chelonia mydas	Turtle, green sea	T		**Yes**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DIABLO CANYON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Reptiles	Gambelia silus	Lizard, blunt-nosed leopard	E		**Possible**
Reptiles	Gopherus agassizii	Tortoise, desert	T		**Low**
Reptiles	Lepidochelys olivacea	Turtle, olive (=Pacific) ridley s	E,T		**Possible**
Reptiles	Xantusia riversiana	Lizard, Island night	T		**Low**
Snails	Helminthoglypta walkeriana	Snail, Morro shoulderband (=Band	E		**Possible**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *DRESDEN*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Low**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asclepias meadii	Mead's milkweed	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Low**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *FARLEY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Ambystoma cingulatum	Flatwoods salamander	T	X	Possible
Birds	Charadrius melodus	Plover, piping	E,T		Low
Birds	Grus americana	Crane, whooping	E		Low
Birds	Haliaeetus leucocephalus	Eagle, bald	T		Possible
Birds	Mycteria americana	Stork, wood	E		Possible
Birds	Picoides borealis	Woodpecker, red-cockaded	E		Possible
Clams	Amblema neislerii	Fat three-ridge (mussel)	E	X	Low
Clams	Elliptio chipolaensis	Chipola slabshell	T	X	Low
Clams	Elliptoideus sloatianus	Purple bankclimber (mussel)	T	X	Low
Clams	Lampsilis orbiculata	Pearlymussel, pink mucket	E		No data
Clams	Lampsilis subangulata	Shiny-rayed pocketbook (mussel)	E	X	Possible
Clams	Medionidus penicillatus	Gulf moccasinshell	E	X	Possible
Clams	Medionidus simpsonianus	Ochlockonee moccasinshell	E	X	Low
Clams	Pleurobema pyriforme	Oval pigtoe (mussel)	E		Possible
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		Low
Mammals	Myotis grisescens	Bat, gray	E		Possible
Mammals	Myotis sodalis	Bat, Indiana	E		Possible
Mammals	Peromyscus polionotus allophrys	Mouse, Choctawahatchee beach	E		Low
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		Low
Plants	Conradina glabra	Apalachicola rosemary	E		Low

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *FARLEY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Euphorbia telephioides	Telephus spurge	T		**Low**
Plants	Harperocallis flava	Harper's beauty	E		**Low**
Plants	Macbridea alba	White birds-in-a-nest	T		**Low**
Plants	Pinguicula ionantha	Godfrey's butterwort	T		**Low**
Plants	Rhododendron chapmanii	Chapman rhododendron	E		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Possible**
Plants	Scutellaria floridana	Florida skullcap	T		**Low**
Plants	Silene polypetala	Fringed campion	E		**Possible**
Plants	Spigelia gentianoides	Gentian pinkroot	E		**Low**
Plants	Torreya taxifolia	Florida torreya	E		**Low**
Plants	Trillium reliquum	Relict trillium	E		**Possible**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Low**
Reptiles	Chelonia mydas	Turtle, green sea	E,T		**Low**
Reptiles	Dermochelys coriacea	Turtle, leatherback sea	E		**Low**
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *FERMI*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Epioblasma torulosa rangiana	Riffleshell, Northern	E		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Insects	Neonympha mitchellii mitchellii	Butterfly, Mitchell's satyr	E		**Low**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**
Reptiles	Nerodia sipedon insularum	Lake Erie water snake	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *FITZPATRICK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Sedum integrifolium leedyi	Leedy's roseroot	T		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**
Snails	Succinea chittenangoensis	Snail, Chittenango ovate amber	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *FORT CALHOUN*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Sterna antillarum	Tern, least	E		**Possible**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Low**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *GINNA*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Sedum integrifolium leedyi	Leedy's roseroot	T		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *GRAND GULF*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Birds	Sterna antillarum	Tern, least	E		**Possible**
Birds	Sterna antillarum browni	Tern, least	E		**Low**
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		**Low**
Fishes	Etheostoma rubrum	Darter, bayou	T		**Possible**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Low**
Mammals	Ursus americanus luteolus	Bear, Louisiana black	T		**Possible**
Plants	Lindera melissifolia	Pondberry	E		**Low**
Reptiles	Graptemys oculifera	Turtle, ringed map (=sawback)	T		**Low**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *HARRIS*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Yes**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Possible**
Clams	Elliptio steinstansana	Spinymussel, Tar River	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Fishes	Notropis mekistocholas	Shiner, Cape Fear	E		**Poss. CH**
Insects	Neonympha mitchellii francisci	Butterfly, Saint Francis' satyr	E		**Possible**
Mammals	Canis rufus	Wolf, red	E		**Low**
Plants	Echinacea laevigata	Smooth coneflower	E		**Possible**
Plants	Lindera melissifolia	Pondberry	E		**Possible**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Possible**
Plants	Ptilimnium nodosum	Harperella	E		**Possible**
Plants	Rhus michauxii	Michaux's sumac	E		**Possible**
Plants	Schwalbea americana	American chaffseed	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *HATCH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Ambystoma cingulatum	Flatwoods salamander	T		**Possible**
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Dendroica kirtlandii	Warbler, Kirtland's	E		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Yes**
Birds	Mycteria americana	Stork, wood	E		**Yes**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Yes**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Yes**
Mammals	Myotis sodalis	Bat, Indiana	E	**NGS**	**Low**
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		**Low**
Plants	Baptisia arachnifera	Hairy rattleweed	E		**Possible**
Plants	Echinacea laevigata	Smooth coneflower	E	**NGS**	**Low**
Plants	Lindera melissifolia	Pondberry	E		**Possible**
Plants	Oxypolis canbyi	Canby's dropwort	E	**NGS**	**Low**
Plants	Ptilimnium nodosum	Harperella	E	**NGS**	**Low**
Plants	Rhus michauxii	Michaux's sumac	E	**NGS**	**Low**
Plants	Sarracenia oreophila	Green pitcher-plant	E	**NGS**	**Low**
Plants	Schwalbea americana	American chaffseed	E	**NGS**	**Low**
Plants	Thalictrum cooleyi	Cooley's meadowrue	E	**NGS**	**Low**
Plants	Trillium reliquum	Relict trillium	E	**NGS**	**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *HATCH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Low**
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		**Yes**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *HOPE CREEK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Numenius borealis	Curlew, Eskimo	E		**Low**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Yes**
Fishes	Etheostoma sellare	Darter, Maryland	E		**Low**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Possible**
Plants	Agalinis acuta	Sandplain gerardia	E		**low**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Rhynchospora knieskernii	Knieskern's beaked-rush	T		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T	**NGS**	**Yes**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *INDIAN POINT*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Sterna dougallii dougallii	Tern, roseate	E,T		**Low**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Low**
Plants	Agalinis acuta	Sandplain gerardia	E		**low**
Plants	Amaranthus pumilus	Seabeach amaranth	T		**Low**
Plants	Helonias bullata	Swamp pink	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa	**X**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *KEWAUNEE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T	**NGS**	**Poss.-CH**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Low**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Possible**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Possible**
Plants	Iris lacustris	Dwarf lake iris	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *LASALLE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Poss. CH**
Plants	Asclepias meadii	Mead's milkweed	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Possible**
Plants	Hymenoxys herbacea	Lakeside daisy	T		**low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *LIMERICK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Fishes	Etheostoma sellare	Darter, Maryland	E		**Low**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**low**
Plants	Helonias bullata	Swamp pink	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Rhynchospora knieskernii	Knieskern's beaked-rush	T		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Low**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *MCGUIRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Arachnids	Microhexura montivaga	Spider, spruce-fir moss	E		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Clams	Lasmigona decorata	Heelsplitter, Carolina	E		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Amphianthus pusillus	Little amphianthus	T		**Low**
Plants	Echinacea laevigata	Smooth coneflower	E		**Low**
Plants	Geum radiatum	Spreading avens	E		**Low**
Plants	Gymnoderma lineare	Lichen, rock gnome	E		**Low**
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		**Possible**
Plants	Hexastylis naniflora	Dwarf-flowered heartleaf	T		**Possible**
Plants	Hudsonia montana	Mountain golden heather	T		**Low**
Plants	Isoetes melanospora	Black-spored quillwort	E		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Liatris helleri	Heller's blazingstar	T		**Low**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Low**
Plants	Rhus michauxii	Michaux's sumac	E		**Possible**
Plants	Sisyrinchium dichotomum	White irisette	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *MCGUIRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Solidago spithamaea	Blue Ridge goldenrod	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *MILLSTONE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Sterna dougallii dougallii	Tern, roseate	E,T		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Possible**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Insects	Nicrophorus americanus	Beetle, American burying (=giant	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Agalinis acuta	Sandplain gerardia	E		**Possible**
Plants	Amaranthus pumilus	Seabeach amaranth	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T	**NGS**	**Possible**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa	**X**	**Low**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *MONTICELLO*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Lampsilis higginsii	Pearlymussel, Higgins' eye	E		**Low**
Clams	Quadrula fragosa	Mussel, winged mapleleaf	E		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Mammals	Canis lupus	Wolf, gray	E,		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Low**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *NINE MILE POINT*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Sedum integrifolium leedyi	Leedy's roseroot	T		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**
Snails	Succinea chittenangoensis	Snail, Chittenango ovate amber	T		**Low**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *NORTH ANNA*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Plethodon shenandoah	Salamander, Shenandoah	E		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Clams	Pleurobema collina	Spinymussel, James River (=Virgi	E		**Low**
Crustacean	Antrolana lira	Isopod, Madison Cave	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Plecotus townsendii virginianus	Bat, Virginia big-eared	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Low**
Plants	Arabis serotina	Shale barren rock-cress	E		**Low**
Plants	Helenium virginicum	Virginia sneezeweed	T	**X**	**Low**
Plants	Helonias bullata	Swamp pink	T		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *OCONEE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Arachnids	Microhexura montivaga	Spider, spruce-fir moss	E		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Clams	Alasmidonta raveneliana	Elktoe, Appalachian	E		**Low**
Clams	Pegias fabula	Pearlymussel, little-wing	E		**Low**
Fishes	Hybopsis monacha	Chub, spotfin (=turquoise shiner	T		**Low**
Fishes	Percina antesella	Darter, amber	E		**Low**
Mammals	Canis rufus	Wolf, red	E		**Low**
Mammals	Glaucomys sabrinus coloratus	Squirrel, Carolina northern flyi	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Amphianthus pusillus	Little amphianthus	T		**Low**
Plants	Echinacea laevigata	Smooth coneflower	E		**Possible**
Plants	Geum radiatum	Spreading avens	E		**Low**
Plants	Gymnoderma lineare	Lichen, rock gnome	E		**Low**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Hexastylis naniflora	Dwarf-flowered heartleaf	T		**Yes**
Plants	Isoetes melanospora	Black-spored quillwort	E		**Possible**
Plants	Isoetes tegetiformans	Mat-forming quillwort	E		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *OCONEE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Low**
Plants	Rhus michauxii	Michaux's sumac	E		**Low**
Plants	Sagittaria fasciculata	Bunched arrowhead	E		**Possible**
Plants	Sarracenia oreophila	Green pitcher-plant	E		**Possible**
Plants	Sarracenia rubra jonesii	Mountain sweet pitcher-plant	E		**Possible**
Plants	Sisyrinchium dichotomum	White irisette	E		**Possible**
Plants	Spiraea virginiana	Virginia spiraea	T		**Low**
Plants	Trillium persistens	Persistent trillium	E		**Possible**
Snails	Mesodon clarki nantahala	Snail, noonday	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *OYSTER CREEK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Numenius borealis	Curlew, Eskimo	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Low**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Rhynchospora knieskernii	Knieskern's beaked-rush	T		**Possible**
Plants	Schwalbea americana	American chaffseed	E		**Possible**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T	**NGS**	**Yes**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Yes**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Yes**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PALISADES*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Insects	Neonympha mitchellii mitchellii	Butterfly, Mitchell's satyr	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**
Reptiles	Nerodia erythrogaster neglecta	Northern copperbelly water snake	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PALOVERDE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius montanus	Mountain plover	PT		**Possible**
Birds	Empidonax traillii extimus	Flycatcher, southwestern willow	E		**Possible**
Birds	Glaucidium brasilianum cactorum	Cactus ferruginous pygmy-owl	E		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Pelecanus occidentalis	Pelican, brown	E		**Low**
Birds	Rallus longirostris yumanensis	Rail, Yuma clapper	E		**No data**
Birds	Strix occidentalis lucida	Owl, Mexican spotted	T		**Possible**
Fishes	Cyprinodon macularius	Pupfish, desert	E		**Possible**
Fishes	Gila elegans	Chub, bonytail	E	**X**	**Low**
Fishes	Meda fulgida	Spikedace	T		**Possible**
Fishes	Poeciliopsis occidentalis	Topminnow, Gila (incl. Yaqui)	E		**Possible**
Fishes	Ptychocheilus lucius	Squawfish, Colorado	E		**Low**
Fishes	Salmo gilae	Trout, Gila	E		**Low**
Fishes	Tiaroga cobitis	Minnow, loach	T		**Possible**
Fishes	Xyrauchen texanus	Sucker, razorback	E		**Possible**
Mammals	Antilocapra americana sonoriensi	Pronghorn, Sonoran	E		**Low**
Mammals	Leptonycteris sanborni	BAT, LESSER (=SANBORN'S) LONG	E		**Possible**
Mammals	Panthera onca	Jaguar	E	**X**	**No Data**
Plants	Agave arizonica	Arizona agave	E		**Low**
Plants	Echinocactus horizonthalonius ni	Nichol's Turk's head cactus	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PALOVERDE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Echinocereus triglochidiatus ari	Arizona hedgehog cactus	E		**No Data**
Plants	Purshia subintegra	Arizona cliffrose	E		**Low**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PEACH BOTTOM*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Fishes	Etheostoma sellare	Darter, Maryland	E		**Poss. CH**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Agalinis acuta	Sandplain gerardia	E		**low**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PERRY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Poss.-CH**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Epioblasma torulosa rangiana	Rifflеshell, Northern	E		**Low**
Clams	Pleurobema clava	Clubshell	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *POINT BEACH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T	**NGS**	**Poss.-CH**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Low**
Insects	Somatochlora hineana	Dragonfly, Hine's (=Ohio) emeral	E		**Possible**
Plants	Cirsium pitcheri	Pitcher's thistle	T		**Possible**
Plants	Iris lacustris	Dwarf lake iris	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *PRAIRIE ISLAND*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Lampsilis higginsii	Pearlymussel, Higgins' eye	E		**Possible**
Clams	Quadrula fragosa	Mussel, winged mapleleaf	E		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Possible**
Plants	Erythronium propullans	Minnesota trout lily	E		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Possible**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Low**
Plants	Sedum integrifolium leedyi	Leedy's roseroot	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *QUAD CITIES*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Cyprogenia stegaria	Fanshell	E		**Low**
Clams	Lampsilis higginsii	Pearlymussel, Higgins' eye	E		**Possible**
Clams	Potamilus capax	Pocketbook, fat	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Aconitum noveboracense	Northern wild monkshood	T		**Low**
Plants	Boltonia decurrens	Decurrent false aster	T		**Low**
Plants	Lespedeza leptostachya	Prairie bush-clover	T		**Low**
Plants	Platanthera leucophaea	Eastern prairie fringed orchid	T		**Possible**
Snails	Discus macclintocki	Snail, Iowa Pleistocene	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *RIVER BEND*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Pelecanus occidentalis	Pelican, brown	E		**Low**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Potamilus inflatus	Heelsplitter, inflated	T		**Low**
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		**Low**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Possible**
Mammals	Ursus americanus luteolus	Bear, Louisiana black	T		**Possible**
Reptiles	Gopherus polyphemus	Tortoise, gopher	T		**Low**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *ROBINSON*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Low**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Lasmigona decorata	Heelsplitter, Carolina	E		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Plants	Amphianthus pusillus	Little amphianthus	T		**Low**
Plants	Echinacea laevigata	Smooth coneflower	E		**Low**
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		**Low**
Plants	Isoetes melanospora	Black-spored quillwort	E		**Low**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Possible**
Plants	Oxypolis canbyi	Canby's dropwort	E		**Possible**
Plants	Rhus michauxii	Michaux's sumac	E		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SALEM*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Numenius borealis	Curlew, Eskimo	E		**Low**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Yes**
Fishes	Etheostoma sellare	Darter, Maryland	E		**Low**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Possible**
Plants	Agalinis acuta	Sandplain gerardia	E		**Low**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Rhynchospora knieskernii	Knieskern's beaked-rush	T		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T	**NGS**	**Yes**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SAN ONOFRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Batrachoseps aridus	Salamander, desert slender	E		**Low**
Amphibians	Bufo microscaphus californicus	Toad, Arroyo southwestern	E		**Yes - CH**
Amphibians	Rana muscosa	Mountain yellow-legged frog	E	**X**	**Low**
Birds	Amphispiza belli clementeae	Sparrow, San Clemente sage	T		**Low**
Birds	Brachyramphus marmoratus marmora	Murrelet, marbled	T		**Low**
Birds	Charadrius alexandrinus nivosus	Plover, western snowy	T		**Possible**
Birds	Charadrius montanus	Mountain plover	SC	**X**	**Possible**
Birds	Empidonax traillii extimus	Flycatcher, southwestern willow	E		**Yes**
Birds	Gymnogyps californianus	Condor, California	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Lanius ludovicianus mearnsi	Shrike, San Clemente loggerhead	E		**Low**
Birds	Pelecanus occidentalis	Pelican, brown	E		**Yes**
Birds	Polioptila californica californi	Gnatcatcher, coastal California	T		**Yes - pCH**
Birds	Rallus longirostris levipes	Rail, light-footed clapper	E		**No data**
Birds	Rallus longirostris yumanensis	Rail, Yuma clapper	E		**No data**
Birds	Sterna antillarum browni	Tern, least	E		**Possible**
Birds	Vireo bellii pusillus	Vireo, least Bell's	E		**Yes**
Crustacean	Branchinecta lynchi	Fairy shrimp, vernal pool	T		**Possible**
Crustacean	Branchinecta sandiegonensis	San Diego fairy shrimp	E		**Yes - CH**
Crustacean	Streptocephalus woottoni	Fairy shrimp, Riverside	E		**Yes - CH**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SAN ONOFRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Fishes	Catostomus santaanae	Santa Ana sucker	T	X	Low
Fishes	Cyprinodon macularius	Pupfish, desert	E		Low
Fishes	Eucyclogobius newberryi	Goby, tidewater	E		Yes - CH
Fishes	Gasterosteus aculeatus williamso	Stickleback, unarmored threespin	E		Low
Fishes	Gila bicolor mohavensis	Chub, Mohave tui	E		Low
Fishes	Gila elegans	Chub, bonytail	E		Low
Fishes	Oncorhynchus mykiss	Steelhead trout	E,T		Possible
Fishes	Ptychocheilus lucius	Squawfish, Colorado	E		Low
Fishes	Xyrauchen texanus	Sucker, razorback	E		Low
Insects	Euphilotes battoides allyni	Butterfly, El Segundo blue	E		Low
Insects	Euphydryas editha quino	Quino checkerspot (butterfly)	E		Low
Insects	Glaucopsyche lygdamus palosverde	Butterfly, Palos Verdes blue	E		Low
Insects	Pyrgus ruralis lagunae	Laguna Mountains skipper	E		Low
Insects	Rhaphiomidas terminatus abdomina	Fly, Delhi Sands flower-loving	E		Low
Mammals	Dipodomys merriami parvus	Kangaroo rat, San Bernadino Merr	E	X	Low
Mammals	Dipodomys stephensi	Kangaroo rat, Stephens'	E		Possible
Mammals	Microtus californicus scirpensis	Vole, Amargosa	E		Low
Mammals	Ovis canadensis cremnobates	Peninsular bighorn sheep	T	X	Low
Mammals	Perognathus longimembris pacific	Mouse, Pacific pocket	E		Yes
Mammals	Vulpes macrotis mutica	Fox, San Joaquin kit	E		Low

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SAN ONOFRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Acanthomintha ilicifolia	Thornmint, San Diego	T	X	Low
Plants	Allium munzii	Onion, Munz's	E		Low
Plants	Ambrosia pumila	Ambrosia, San Diego	E	X	Low
Plants	Arctostaphylos glandulosa crassi	Manzanita, Del Mar	E	X	Low
Plants	Arenaria ursina	Sandwort, Bear Valley	T	X	Low
Plants	Astragalus albens	Cushenbury milk-vetch	E		Low
Plants	Astragalus brauntonii	Milk-vetch, Braunton's	E		Low
Plants	Astragalus jaegerianus	Milk-vetch, Lane Mountain	E		Low
Plants	Astragalus lentiginosus coachell	Milk-vetch, Coachella Valley	E		Low
Plants	Astragalus tricarinatus	Milk-vetch, triple-ribbed	E		Low
Plants	Atriplex coronata notatior	Saltbush (=Crownscale), San Jacinto	E	X	Low
Plants	Baccharis vanessae	Baccharis (=Coyote bush), Encini	T		Low
Plants	Berberis nevinii	Barberry, Nevin's	E	X	Low
Plants	Brodiaea filifolia	Brodiaea, thread-leaved	T		Yes
Plants	Castilleja cinerea	Paintbrush, ash-grey	T	X	Low
Plants	Castilleja grisea	San Clemente Island Indian paint	E		Low
Plants	Ceanothus ophiochilus	Ceanothus, Vail Lake	T	X	Low
Plants	Cercocarpus traskiae	Mountain-mahogany, Catalina	E	X	Low
Plants	Chorizanthe orcuttiana	Spineflower, Orcutt's	E		Low
Plants	Cordylanthus maritimus maritimus	Salt marsh bird's-beak	E		Low

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SAN ONOFRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Corethrogyne filaginifolia linif	Sand aster, Del Mar	PE		**No data**
Plants	Delphinium kinkiense	San Clemente Island larkspur	E		**Low**
Plants	Dodecahema leptoceras	Slender-horned spineflower	E	**X**	**Low**
Plants	Dudleya cymosa marcescens	Dudleya, Marcescent	T	**X**	**Low**
Plants	Dudleya cymosa ovatifolia	Dudleyea, Santa Monica Mountains	T	**X**	**Low**
Plants	Dudleya stolonifera	Liveforever, Laguna Beach	T	**X**	**Low**
Plants	Eriastrum densifolium sanctorum	Santa Ana River woolly-star	E		**Low**
Plants	Erigeron parishii	Parish's daisy	T		**Low**
Plants	Eriogonum kennedyi austromontanu	Buckwheat, southern mountain	T	**X**	**Low**
Plants	Eriogonum ovalifolium vineum	Cushenbury buckwheat	E		**Low**
Plants	Eryngium aristulatum parishii	San Diego button-celery	E		**Yes**
Plants	Fremontodendron mexicanum	Flannelbush, Mexican	E	**X**	**Low**
Plants	Helianthemum greenei	Rush-rose, island	T	**X**	**Low**
Plants	Hemizonia conjugens	Tarweed, Otay	T	**X**	**Low**
Plants	Lesquerella kingii bernardina	San Bernardino Mountains bladder	E		**Low**
Plants	Lithophragma maximum	Woodland star, San Clemente Isla	E	**X**	**Low**
Plants	Lotus dendroideus traskiae	San Clemente Island broom	E		**Low**
Plants	Malacothamnus clementinus	San Clemente Island bush-mallow	E		**Low**
Plants	Monardella linoides viminea	Monardella, willowy	E	**X**	**Low**
Plants	Navarretia fossalis	Navarretia, prostrate (=no-named	T		**Yes**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SAN ONOFRE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Orcuttia californica	California Orcutt grass	E		**Low**
Plants	Oxytheca parishii goodmaniana	Cushenbury oxytheca	E		**Low**
Plants	Pentachaeta lyonii	Pentachaeta, Lyon's	E	**X**	**Low**
Plants	Poa atropurpurea	Bluegrass, San Bernadino	E	**X**	**Low**
Plants	Pogogyne abramsii	San Diego mesa mint	E		**Low**
Plants	Pogogyne nudiuscula	Otay mesa mint	E		**Low**
Plants	Rorippa gambellii	Gambel's watercress	E		**Low**
Plants	Sibara filifolia	Rock-cress, island	E	**X**	**Low**
Plants	Sidalcea pedata	Pedate checker-mallow	E		**Low**
Plants	Taraxacum californicum	Dandelion, California	E	**X**	**Low**
Plants	Thelypodium stenopetalum	Slender-petaled mustard	E		**Low**
Plants	Trichostema austromontanum compa	Bluecurls, Hidden Lake	T	**X**	**Low**
Plants	Verbesina dissita	Crownbeard, big-leaved	T		**Low**
Reptiles	Chelonia mydas	Turtle, green sea	E,T	**NGS**	**Possible**
Reptiles	Gambelia silus	Lizard, blunt-nosed leopard	E		**Low**
Reptiles	Gopherus agassizii	Tortoise, desert	T		**Low**
Reptiles	Lepidochelys olivacea	Turtle, olive (=Pacific) ridley s	E,T		**Possible**
Reptiles	Uma inornata	Lizard, Coachella Valley fringe-t	T		**Low**
Reptiles	Xantusia riversiana	Lizard, Island night	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SEQUOYAH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Low**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Cyprogenia stegaria	Fanshell	E		**Possible**
Clams	Dromus dromas	Pearlymussel, dromedary	E		**No data**
Clams	Epioblasma florentina florentina	Pearlymussel, yellow-blossom	E		**Low**
Clams	Epioblasma metastriata	Combshell, upland	E		**Low**
Clams	Epioblasma othcaloogensis	Acornshell, southern	E		**Low**
Clams	Fusconaia cor	Pigtoe, shiny	E		**No data**
Clams	Fusconaia cuneolus	Pigtoe, fine-rayed	E		**No data**
Clams	Lampsilis altilis	Pocketbook, fine-lined	T		**Low**
Clams	Lampsilis orbiculata	Pearlymussel, pink mucket	E		**No data**
Clams	Lampsilis virescens	Lampmussel, Alabama	E		**No data**
Clams	Medionidus acutissimus	Moccasinshell, Alabama	T		**Low**
Clams	Medionidus parvulus	Moccasinshell, Coosa	E		**Low**
Clams	Medionidus penicillatus	Gulf moccasinshell	E	**X**	**Low**
Clams	Pegias fabula	Pearlymussel, little-wing	E		**Low**
Clams	Plethobasus cooperianus	Pearlymussel, orange-foot pimple	E		**No data**
Clams	Pleurobema decisum	Clubshell, southern	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SEQUOYAH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Clams	Pleurobema georgianum	Pigtoe, southern	E		**Low**
Clams	Pleurobema gibberum	Pigtoe, Cumberland	E		**Low**
Clams	Pleurobema perovatum	Clubshell, ovate	E		**Low**
Clams	Pleurobema plenum	Pigtoe, rough	E		**No Data**
Clams	Ptychobranchus greeni	Kidneyshell, triangular	E		**Low**
Clams	Quadrula intermedia	Pearlymussel, Cumberland monkeyf	E		**No Data**
Clams	Toxolasma cylindrellus	Pearlymussel, pale lilliput	E		**No Data**
Clams	Villosa perpurpurea	Purple bean	E		**Low**
Clams	Villosa trabalis	Pearlymussel, Cumberland bean	E		**No Data**
Fishes	Cyprinella caerulea	Shiner, blue	T		**Low**
Fishes	Cyprinella monacha	Chub, spotfin (=turquoise shiner	T		**Low**
Fishes	Etheostoma percnurum	Darter, duskytail	E		**Low**
Fishes	Hybopsis monacha	Chub, spotfin (=turquoise shiner	T		**Low**
Fishes	Notropis albizonatus	Shiner, Palezone	E	**X**	**Low**
Fishes	Noturus baileyi	Madtom, smoky	E		**Low**
Fishes	Noturus flavipinnis	Madtom, yellowfin	T		**Low**
Fishes	Percina antesella	Darter, amber	E		**Low**
Fishes	Percina aurolineata	Darter, goldline	T		**Low**
Fishes	Percina jenkinsi	Logperch, Conasauga	E		**Low**
Fishes	Percina tanasi	Darter, snail	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SEQUOYAH*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Mammals	Canis rufus	Wolf, red	E		**Low**
Mammals	Myotis grisescens	Bat, gray	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Apios priceana	Price's potato-bean	T		**Low**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T		**Low**
Plants	Conradina verticillata	Cumberland rosemary	T		**low**
Plants	Helianthus eggertii	Sunflower, Eggert's	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Marshallia mohrii	Mohr's Barbara's buttons	T		**Low**
Plants	Pityopsis ruthii	Ruth's golden aster	E		**Low**
Plants	Ptilimnium nodosum	Harperella	E		**Low**
Plants	Sagittaria secundifolia	Kral's water-plantain	T		**Low**
Plants	Sarracenia oreophila	Green pitcher-plant	E		**Low**
Plants	Scutellaria montana	Large-flowered skullcap	T		**Low**
Plants	Spiraea virginiana	Virginia spiraea	T		**Possible**
Plants	Xyris tennesseensis	Tennessee yellow-eyed grass	E		**Low**
Snails	Anguispira picta	Snail, painted snake coiled fore	T		**Low**
Snails	Athearnia anthonyi	Riversnail, Anthony's	E		**Low**
Snails	Marstonia ogmoraphe	Marstonia (snail, royal (=obese)	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SOUTH TEXAS*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Bufo houstonensis	Toad, Houston	E		**Low**
Birds	Charadrius melodus	Plover, piping	E,T		**Poss.-CH**
Birds	Charadrius montanus	Mountain plover	PT		**Possible**
Birds	Grus americana	Crane, whooping	E		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Pelecanus occidentalis	Pelican, brown	E		**Possible**
Birds	Tympanuchus cupido attwateri	Prairie-chicken, Attwater's great	E		**Possible**
Mammals	Ursus americanus luteolus	Bear, Louisiana black	T		**Low**
Plants	Hymenoxys texana	Texas prairie dawn-flower	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *ST. LUCIE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Ammodramus savannarum floridanus	Sparrow, Florida grasshopper	E		**Low**
Birds	Aphelocoma coerulescens coerules	Jay, Florida scrub	T		**Possible**
Birds	Caracara cheriway audubonii	Caracara, Audobon's crested	T		**Possible**
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Birds	Rostrhamus sociabilis plumbeus	Kite, Everglade snail	E		**Possible**
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		**Low**
Mammals	Felis concolor coryi	Panther, Florida	E		**Low**
Mammals	Peromyscus polionotus niveiventr	Mouse, southeastern beach	T		**Possible**
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		**Yes**
Plants	Asimina tetramera	Four-petal pawpaw	E		**Possible**
Plants	Bonamia grandiflora	Florida bonamia	T		**Low**
Plants	Cereus eriophorus fragrans	Fragrant prickly-apple	E		**Possible**
Plants	Chionanthus pygmaeus	Pygmy fringe-tree	E		**Low**
Plants	Cladonia perforata	Florida perforate cladonia	E		**Low**
Plants	Clitoria fragrans	Pigeon wings	T		**Low**
Plants	Conradina brevifolia	Short-leaved rosemary	E		**Low**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *ST. LUCIE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Crotalaria avonensis	Avon Park harebells	E		**Low**
Plants	Cucurbita okeechobeensis	Okeechobee gourd	E		**Low**
Plants	Dicerandra christmanii	Garrett's mint	E		**Low**
Plants	Dicerandra frutescens	Scrub mint	E		**Low**
Plants	Dicerandra immaculata	Lakela's mint	E		**Possible**
Plants	Eriogonum longifolium gnaphalifc	Scrub buckwheat	T		**Low**
Plants	Eryngium cuneifolium	Snakeroot	E		**Low**
Plants	Halophila johnsonii	Seagrass, Johnsons	T		**Possible**
Plants	Hypericum cumulicola	Highlands scrub hypericum	E		**Low**
Plants	Jacquemontia reclinata	Beach jacquemontia	E		**Possible**
Plants	Liatris ohlingerae	Scrub blazingstar	E		**Low**
Plants	Nolina brittoniana	Britton's beargrass	E		**Low**
Plants	Paronychia chartacea	Papery whitlow-wort	T		**Low**
Plants	Polygala lewtonii	Lewton's polygala	E		**Low**
Plants	Polygonella basiramia	Wireweed	E		**Low**
Plants	Polygonella myriophylla	Sandlace	E		**Low**
Plants	Prunus geniculata	Scrub plum	E		**Low**
Plants	Warea carteri	Carter's mustard	E		**Low**
Plants	Ziziphus celata	Florida ziziphus	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Yes**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *ST. LUCIE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Reptiles	Chelonia mydas	Turtle, green sea	E,T		**Yes**
Reptiles	Dermochelys coriacea	Turtle, leatherback sea	E		**Yes**
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		**Possible**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E	**NGS**	**Possible**
Reptiles	Eumeces egregius lividus	Skink, bluetail (=blue-tailed mo	T		**Low**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Possible**
Reptiles	Neoseps reynoldsi	Skink, sand	T		**Low**
Reptiles	Nerodia fasciata taeniata	Snake, Atlantic salt marsh	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SUMMER*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Lasmigona decorata	Heelsplitter, Carolina	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Plants	Amphianthus pusillus	Little amphianthus	T		**Possible**
Plants	Echinacea laevigata	Smooth coneflower	E		**Low**
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		**Low**
Plants	Hexastylis naniflora	Dwarf-flowered heartleaf	T		**Possible**
Plants	Isoetes melanospora	Black-spored quillwort	E		**Low**
Plants	Lysimachia asperulaefolia	Rough-leaved loosestrife	E		**Low**
Plants	Oxypolis canbyi	Canby's dropwort	E		**Low**
Plants	Ptilimnium nodosum	Harperella	E		**Possible**
Plants	Ribes echinellum	Miccosukee gooseberry	T		**Low**
Plants	Schwalbea americana	American chaffseed	E		**Low**
Plants	Trillium reliquum	Relict trillium	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SURRY*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E		**Low**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Possible**
Fishes	Percina rex	Logperch, Roanoke	E		**Low**
Insects	Cicindela dorsalis dorsalis	Beetle, northeastern beach tiger	T		**Low**
Mammals	Canis rufus	Wolf, red	E		**Low**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Aeschynomene virginica	Sensitive joint-vetch	T		**Possible**
Plants	Helonias bullata	Swamp pink	T		**Possible**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Rhus michauxii	Michaux's sumac	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *SUSQUEHANNA*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Low**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa	**X**	**Possible**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *THREE MILE ISLAND*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Fishes	Etheostoma sellare	Darter, Maryland	E		**Low**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Mammals	Sciurus niger cinereus	Squirrel, Delmarva Peninsula fox	E		**Low**
Plants	Agalinis acuta	Sandplain gerardia	E		**Low**
Plants	Helonias bullata	Swamp pink	T		**Low**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa		**Possible**

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *TURKEY POINT*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Ammodramus maritimus mirabilis	Sparrow, Cape Sable seaside	E		**Possible**
Birds	Ammodramus savannarum floridanus	Sparrow, Florida grasshopper	E		**Low**
Birds	Aphelocoma coerulescens coerules	Jay, Florida scrub	T		**Low**
Birds	Caracara cheriway audubonii	Caracara, Audobon's crested	T		**Low**
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Mycteria americana	Stork, wood	E		**Yes**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Birds	Rostrhamus sociabilis plumbeus	Kite, Everglade snail	E		**Possible**
Birds	Sterna dougallii dougallii	Tern, roseate	E,T		**Yes**
Insects	Heraclides aristodemus ponceanus	Butterfly, Schaus swallowtail	E		**Low**
Mammals	Felis concolor coryi	Panther, Florida	E		**Low**
Mammals	Neotoma floridana smalli	Woodrat, Key Largo	E		**Low**
Mammals	Odocoileus virginianus clavium	Deer, key	E		**Low**
Mammals	Oryzomys palustris natator	Rice rat (=silver rice rat)	E		**Low**
Mammals	Peromyscus gossypinus allapatico	Mouse, Key Largo cotton	E		**Low**
Mammals	Sylvilagus palustris hefneri	Rabbit, Lower Keys	E		**Low**
Mammals	Trichechus manatus	Manatee, West Indian (=Florida)	E		**Yes**
Plants	Amorpha crenulata	Crenulate lead-plant	E		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *TURKEY POINT*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Plants	Cereus robinii	Key tree-cactus	E		**Low**
Plants	Chamaesyce deltoidea deltoidea	Deltoid spurge	E		**Possible**
Plants	Chamaesyce garberi	Garber's spurge	T		**Possible**
Plants	Eryngium cuneifolium	Snakeroot	E		**Low**
Plants	Galactia smallii	Small's milkpea	E		**Possible**
Plants	Halophila johnsonii	Seagrass, Johnsons	T		**Possible**
Plants	Jacquemontia reclinata	Beach jacquemontia	E		**Possible**
Plants	Polygala smallii	Tiny polygala	E		**Possible**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Possible**
Reptiles	Chelonia mydas	Turtle, green sea	E,T		**Possible**
Reptiles	Crocodylus acutus	Crocodile, American	E		**Yes**
Reptiles	Dermochelys coriacea	Turtle, leatherback sea	E		**Possible**
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		**Yes**
Reptiles	Eretmochelys imbricata	Turtle, hawksbill sea (=carey)	E		**Possible**
Reptiles	Lepidochelys kempii	Turtle, Kemp's (=Atlantic) ridley	E	**NGS**	**Possible**
Snails	Orthalicus reses	Snail, Stock Island tree	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *VERMONT YANKEE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Clams	Alasmidonta heterodon	Mussel, dwarf wedge	E	**NGS**	**Possible**
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		**Low**
Insects	Cicindela puritana	Beetle, Puritan tiger	T		**Low**
Insects	Lycaeides melissa samuelis	Butterfly, Karner blue	E		**Low**
Mammals	Myotis sodalis	Bat, Indiana	E		**Possible**
Plants	Astragalus robbinsii jesupi	Jesup's milk-vetch	E		**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Low**
Plants	Scirpus ancistrochaetus	Northeastern (=Barbed bristle) b	E		**Possible**
Reptiles	Clemmys muhlenbergii	Bog turtle	T/Tsa	**X**	**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *VOGTLE*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Amphibians	Ambystoma cingulatum	Flatwoods salamander	T	X	Possible
Birds	Grus americana	Crane, whooping	E		Low
Birds	Haliaeetus leucocephalus	Eagle, bald	T		Possible
Birds	Mycteria americana	Stork, wood	E		Possible
Birds	Picoides borealis	Woodpecker, red-cockaded	E		Possible
Clams	Cyprogenia stegaria	Fanshell	E		Low
Fishes	Acipenser brevirostrum	Sturgeon, shortnose	E		Possible
Plants	Amphianthus pusillus	Little amphianthus	T		Possible
Plants	Echinacea laevigata	Smooth coneflower	E		Low
Plants	Helianthus schweinitzii	Schweinitz's sunflower	E		Low
Plants	Isoetes tegetiformans	Mat-forming quillwort	E		Low
Plants	Lindera melissifolia	Pondberry	E		Low
Plants	Oxypolis canbyi	Canby's dropwort	E		Low
Plants	Ptilimnium nodosum	Harperella	E		Possible
Plants	Ribes echinellum	Miccosukee gooseberry	T		Low
Plants	Schwalbea americana	American chaffseed	E		Low
Plants	Trillium reliquum	Relict trillium	E		Possible
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		Low
Reptiles	Drymarchon corais couperi	Snake, eastern indigo	T		Possible

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WATERFORD*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Charadrius melodus	Plover, piping	E,T		**Low**
Birds	Grus americana	Crane, whooping	E		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Pelecanus occidentalis	Pelican, brown	E		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Low**
Clams	Potamilus inflatus	Heelsplitter, inflated	T		**Low**
Fishes	Acipenser oxyrhynchus desotoi	Sturgeon, Gulf	T		**Low**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Possible**
Mammals	Ursus americanus luteolus	Bear, Louisiana black	T		**Possible**
Plants	Isoetes louisianensis	Louisiana quillwort	E		**Low**
Reptiles	Caretta caretta	Turtle, loggerhead sea	T		**Low**
Reptiles	Gopherus polyphemus	Tortoise, gopher	T		**Low**
Reptiles	Graptemys oculifera	Turtle, ringed map (=sawback)	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WATTS BAR*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Arachnids	Microhexura montivaga	Spider, spruce-fir moss	E		**Low**
Birds	Grus americana	Crane, whooping	EXPN		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Birds	Picoides borealis	Woodpecker, red-cockaded	E		**Possible**
Clams	Alasmidonta atropurpurea	Cumberland elktoe (mussel)	E		**Low**
Clams	Alasmidonta raveneliana	Elktoe, Appalachian	E		**Low**
Clams	Cyprogenia stegaria	Fanshell	E		**Possible**
Clams	Dromus dromas	Pearlymussel, dromedary	E		**No data**
Clams	Epioblasma brevidens	Cumberlandian combshell	E		**Low**
Clams	Epioblasma capsaeformis	Oyster mussel	E		**Low**
Clams	Epioblasma florentina florentina	Pearlymussel, yellow-blossom	E		**Low**
Clams	Epioblasma metastriata	Combshell, upland	E		**Low**
Clams	Epioblasma othcaloogensis	Acornshell, southern	E		**Low**
Clams	Epioblasma walkeri	Riffleshell, tan	E		**Low**
Clams	Fusconaia cuneolus	Pigtoe, fine-rayed	E		**No data**
Clams	Lampsilis altilis	Pocketbook, fine-lined	T		**Low**
Clams	Lampsilis orbiculata	Pearlymussel, pink mucket	E		**No data**
Clams	Lampsilis virescens	Lampmussel, Alabama	E		**No data**
Clams	Medionidus acutissimus	Moccasinshell, Alabama	T		**Low**
Clams	Medionidus parvulus	Moccasinshell, Coosa	E		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WATTS BAR*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Clams	Medionidus penicillatus	Gulf moccasinshell	E	X	Low
Clams	Pegias fabula	Pearlymussel, little-wing	E		Low
Clams	Plethobasus cooperianus	Pearlymussel, orange-foot pimple	E		No data
Clams	Pleurobema decisum	Clubshell, southern	E		Low
Clams	Pleurobema georgianum	Pigtoe, southern	E		Low
Clams	Pleurobema gibberum	Pigtoe, Cumberland	E		Low
Clams	Pleurobema perovatum	Clubshell, ovate	E		Low
Clams	Pleurobema plenum	Pigtoe, rough	E		No Data
Clams	Ptychobranchus greeni	Kidneyshell, triangular	E		Low
Clams	Villosa perpurpurea	Purple bean	E		Low
Clams	Villosa trabalis	Pearlymussel, Cumberland bean	E		No Data
Fishes	Cyprinella caerulea	Shiner, blue	E		Low
Fishes	Cyprinella monacha	Chub, spotfin (=turquoise shiner	EXPN		Low
Fishes	Etheostoma percnurum	Darter, duskytail	E		Low
Fishes	Etheostoma sp	Darter, bluemask (=jewel)	E	X	Low
Fishes	Hybopsis monacha	Chub, spotfin (=turquoise shiner	T		Low
Fishes	Noturus baileyi	Madtom, smoky	E		Low
Fishes	Noturus flavipinnis	Madtom, yellowfin	T		Low
Fishes	Percina antesella	Darter, amber	E		Low
Fishes	Percina aurolineata	Darter, goldline	T		Low

1 - □x□ = species not included in 1997 evaluation; □NGS□ = species not identified in 2003 GEn&SIS database query
2 - □yes□ = species known to occur at site, □Possible□ = potentially occurring at the site,
□Low□ = low probablility of occurrrence at site, □No Data□ = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WATTS BAR*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Fishes	Percina jenkinsi	Logperch, Conasauga	E		**Low**
Fishes	Percina tanasi	Darter, snail	T		**Possible**
Fishes	Phoxinus cumberlandensis	Dace, blackside	T		**Low**
Mammals	Canis rufus	Wolf, red	E		**Low**
Mammals	Glaucomys sabrinus coloratus	Squirrel, Carolina northern flyi	E		**Low**
Mammals	Myotis grisescens	Bat, gray	E		**Possible**
Mammals	Myotis sodalis	Bat, Indiana	E,CH		**Possible**
Plants	Apios priceana	Price's potato-bean	T		**Low**
Plants	Arenaria cumberlandensis	Cumberland sandwort	E		**Low**
Plants	Asplenium scolopendrium americar	American hart's-tongue fern	T	**X**	**Low**
Plants	Conradina verticillata	Cumberland rosemary	T		**low**
Plants	Helianthus eggertii	Sunflower, Eggert's	T	**X**	**Low**
Plants	Isotria medeoloides	Small whorled pogonia	T		**Possible**
Plants	Pityopsis ruthii	Ruth's golden aster	E		**Low**
Plants	Scutellaria montana	Large-flowered skullcap	E		**Low**
Plants	Spiraea virginiana	Virginia spiraea	T		**Possible**
Plants	Xyris tennesseensis	Tennessee yellow-eyed grass	E		**Low**
Snails	Athearnia anthonyi	Riversnail, Anthony's	E		**Low**
Snails	Marstonia ogmoraphe	Marstonia (snail, royal (=obese)	E		**Low**
Snails	Mesodon clarki nantahala	Snail, noonday	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WNP2*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Brachyramphus marmoratus marmora	Murrelet, marbled	T		**Low**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Yes**
Birds	Strix occidentalis caurina	Owl, northern spotted	T		**Low**
Fishes	Oncorhynchus mykiss	Steelhead trout	E,T	**X**	**Yes**
Fishes	Oncorhynchus nerka	Salmon, sockeye (=red, =blueback)	E,T		**Possible**
Fishes	Oncorhynchus tshawytscha	Salmon, chinook	E,T		**Yes**
Fishes	Salvelinus confluentus	Bull trout	T		**Possible**
Mammals	Canis lupus	Wolf, gray	E,		**Low**
Mammals	Ursus arctos	Bear, grizzly (=brown)	T		**Low**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

2003 GEn&SIS SPECIES LIST FOR: *WOLF CREEK*

CLASS	SPECIES	COMMON NAME	STATUS	New[1]	Probablility[2]
Birds	Grus americana	Crane, whooping	E		**Possible**
Birds	Haliaeetus leucocephalus	Eagle, bald	T		**Possible**
Fishes	Notropis topeka	Topeka shiner	E	**X**	**Possible**
Fishes	Noturus placidus	Madtom, Neosho	T		**Possible**
Fishes	Scaphirhynchus albus	Sturgeon, pallid	E		**Low**
Insects	Nicrophorus americanus	Beetle, American burying (=giant	E		**Low**
Mammals	Myotis grisescens	Bat, gray	E		**Low**
Plants	Asclepias meadii	Mead's milkweed	T		**Possible**
Plants	Platanthera praeclara	Western prairie fringed orchid	T		**Possible**

1 - "x" = species not included in 1997 evaluation; "NGS" = species not identified in 2003 GEn&SIS database query
2 - "yes" = species known to occur at site, "Possible" = potentially occurring at the site,
"Low" = low probablility of occurrrence at site, "No Data" = insufficient data to assess occurrence potential

APPENDIX B

SPECIES DISTRIBUTIONS AND CRITICAL HABITATS

APPENDIX B

SPECIES DISTRIBUTIONS AND CRITICAL HABITATS

Maps obtained from applicable species recovery plans and critical habitat designations as published in the federal register.

Appendix B.1 Distribution of Selected Plant Species 3

Aeschyonomene virginica (sensitive joint vetch)..... 4
Agalinis acuta (sandplain gerardia) 5
Amaranthus pumilus (seabeach amaranth) 6
Amphianthus pusillus (little amphianthus)..... 7
Apios priciana (Price's potato-bean) 8
Boltonia decurrens (decurrent false-aster)..... 9
Cirsium pitcheri (Pitcher's thistle)..... 10
Conradina verticillata (Cumberland rosemary) 11
Dalea foliosa (leafy prairie-clover) 12
Helonia bullata (swamp pink) 13
Hymenoxys acaulis var. *glabra* (lakeside daisy)..... 14
Isoetes tegetiformans (mat-forming quillwort)..... 15
Isotria medioloides (small whorled pogonia) 16
Lindera mellisifolia (pondberry)..... 17
Lysimachia asperulifolia (rough-leaved loosestrife) 18
Plantanthera leucophaea (eastern prairie fringed orchid)..... 19
Platanthera praeclara (western prairie fringed orchid) 20
Ptilimnium nodosum (harperella)..... 21
Rhynchospora knieskernii (Knieskern's beaked-rush)..... 22
Schwalbea americana (American chaffseed) 23
Scirpus ancistrochaetus (northeastern bulrush)..... 24
Sedum integrifolium ssp. *leedyi* (Leedy's roseroot)..... 25
Spiraea virginiana (Virginia spiraea) 26

APPENDIX B.2 Distribution of Selected Vertebrate Animal Species..... 27

Notropis mekistocholas (Cape Fear shiner) 28
Scaphirhynchus albus (pallid sturgeon)..... 29
Etheostoma nianguae (Niangua darter) 30
Etheostoma sellare (Maryland darter) 31
Noturus placidus (Neosho madtom) 32
Etheostoma rubrum (Bayou Darter) 33
Xyrauchen texanus (razorback sucker) 33
Tiaroga cobitis (loach minnow)..... 34
Meda fulgida (spikedace)..... 34
Myotis grisescens (gray bat) 35
Myotis sodalis (Indiana bat)..... 35
Ursus americanus luteolus (Louisiana black bear)..... 36

Leptonycteris curasoae yerbabuenae (lesser long-nosed bat) 38
Glaucidium brasilianum cactorum (cactus ferruginous pygmy-owl) 39
Strix occidentalis lucida (Mexican spotted owl) 40
Charadrius melodus (piping plover) 41
Tympanuchus cupido attwateri (Attwater's prairie chicken) 50
Vireo atricapillus (black-capped vireo) 51
Dendroica chrysoparia (golden-cheeked warbler) 52
Clemmys muhlenbergii (bog turtle) 53

APPENDIX B.3 Distribution of Selected Invertebrate Animal Species 54

Alasmidonta heterodon (dwarf wedge mussel) 55
Cyprogenia stegaria (fanshell) 56
Neonympha mitchellii mitchellii (Mitchell's satyr butterfly) 56
Neonympha mitchellii francisci (Saint Francis' satyr butterfly) 57
Somatochlora hineana (Hine's emerald dragonfly) 57
Lycaeides melissa samuelis (Karner blue butterfly) 58

APPENDIX B.4 Distribution of Selected Species in the Vicinity of San Onofre 61

Various species located on Camp Pendleton Marine Corps Base. 62
Bufo microscaphus californicus (arroyo toad) 63
Polioptila californica californica (coastal California gnatcatcher) 65
Vireo bellii pusillus (least Bell's vireo) 66
Branchinecta sandiegoensis (San Diego fairy shrimp) 1
Streptocephalus woottoni (Riverside fairy shrimp) 69
Eucyclogobius newberryi (tidewater goby) 71
Perognathus longimembris pacificus (Pacific Pocket Mouse). 72
Navarretia fossalis (prostrate navarretia) 73
Eryngium aristulatum ssp. *parishii* (San Diego button-celery) 74

APPENDIX B.5 Distribution of Selected Species in the Vicinity of Diablo Canyon 75

Rana aurora draytoni (California red-legged frog) 76
Five western San Luis Obispo County species 77
Branchinecta lynchi (vernal pool fairy shrimp) 78
Branchinecta longiantenna (longhorn fairy shrimp) 79
Eremalche kernensis (Kern mallow) 80
Eriastrum hooverii (Hoover's wooly-star) 81
Lembertia congdonii (San Joaquin woolly-threads) 82
Caulanthus californicus (California jewelflower) 83
Dipodomys ingens (giant kangaroo rat) 84
Gambelia silas (blunt-nosed leopard lizard) 85
Vulpes macrotis mutica (San Joaquin kit fox) 86
Dipodomys heermanni morroensis (Morro bay kangaroo rat) 87
Helminthoglypta walkeriana (Morro Shoulderband snail) 87
Enhydra lutris nereis (Southern sea otter) 88

Appendix B.1 Distribution of Selected Plant Species

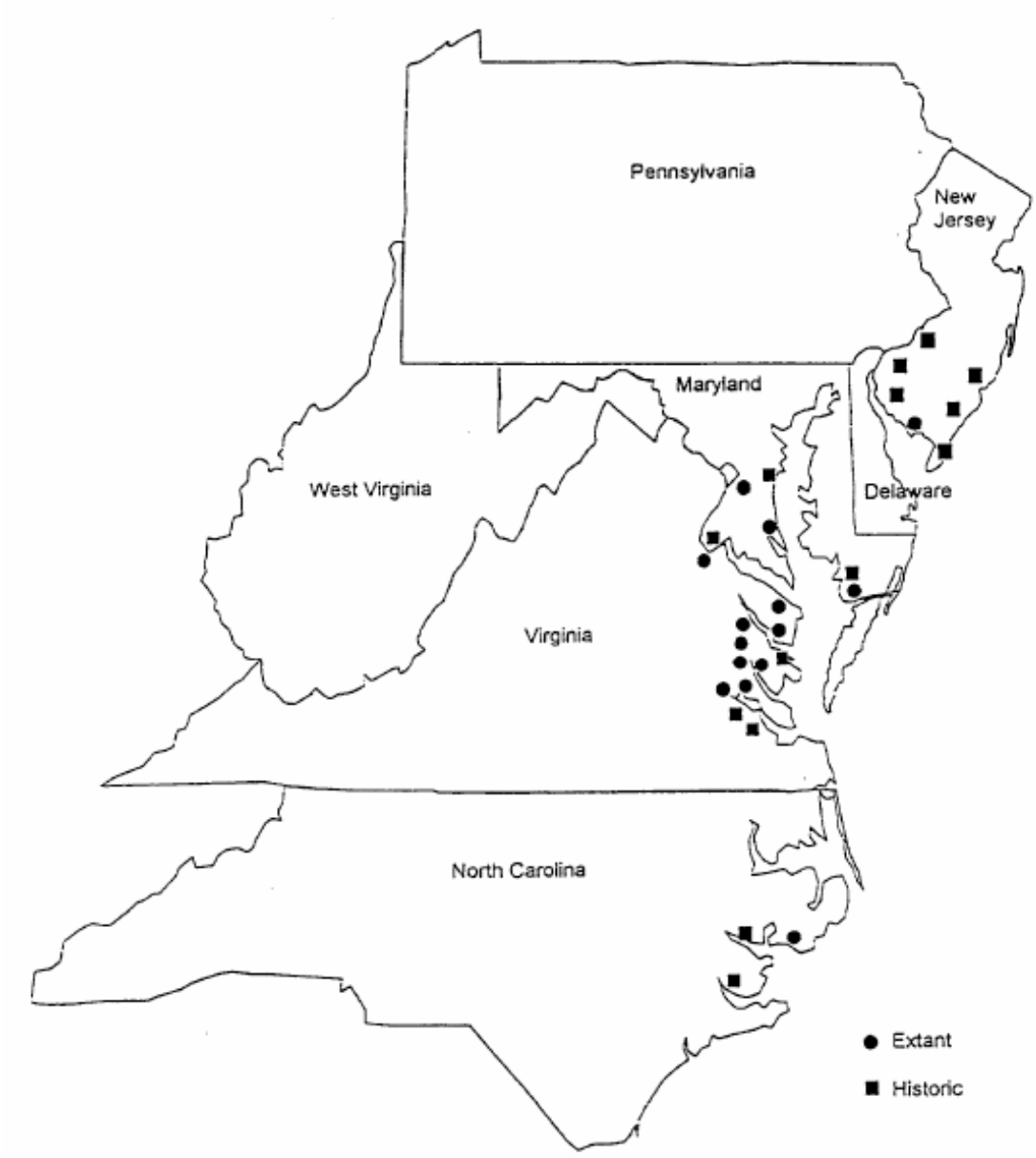


Figure 1. Distribution of *Aeschynomene virginica* in the United States as of 1994, showing counties with extant (●) versus historical only (■) occurrences. Sources: Maryland Natural Heritage Program; North Carolina Natural Heritage Program; New Jersey Natural Heritage Program; U.S. Fish and Wildlife Service, New Jersey Field Office; Virginia Department of Conservation and Recreation, Division of Natural Heritage

Aeschyonomene virginica **(sensitive joint vetch)**

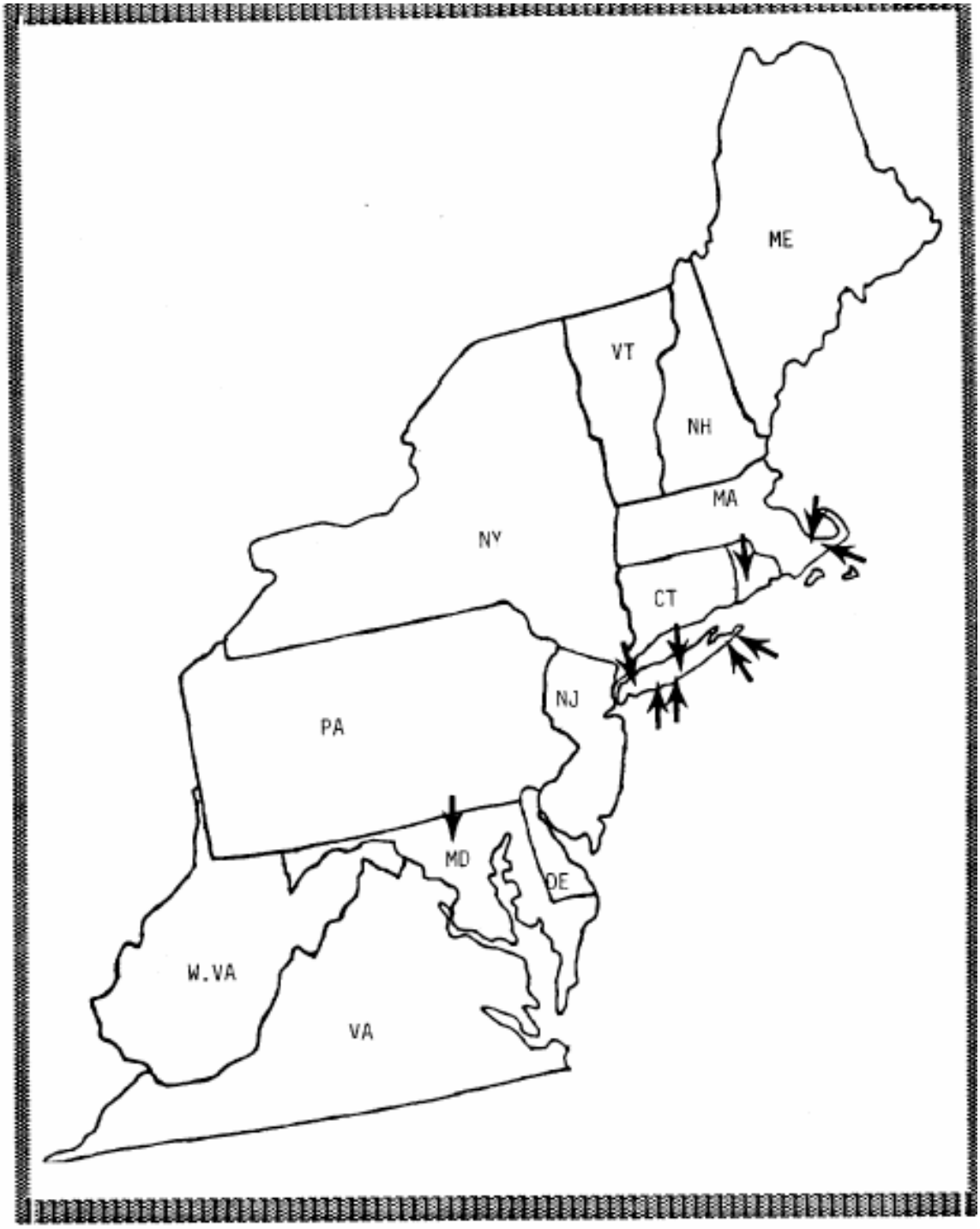


Figure 2. Current distribution of Agalinis acuta.

***Agalinis acuta* (sandplain gerardia)**

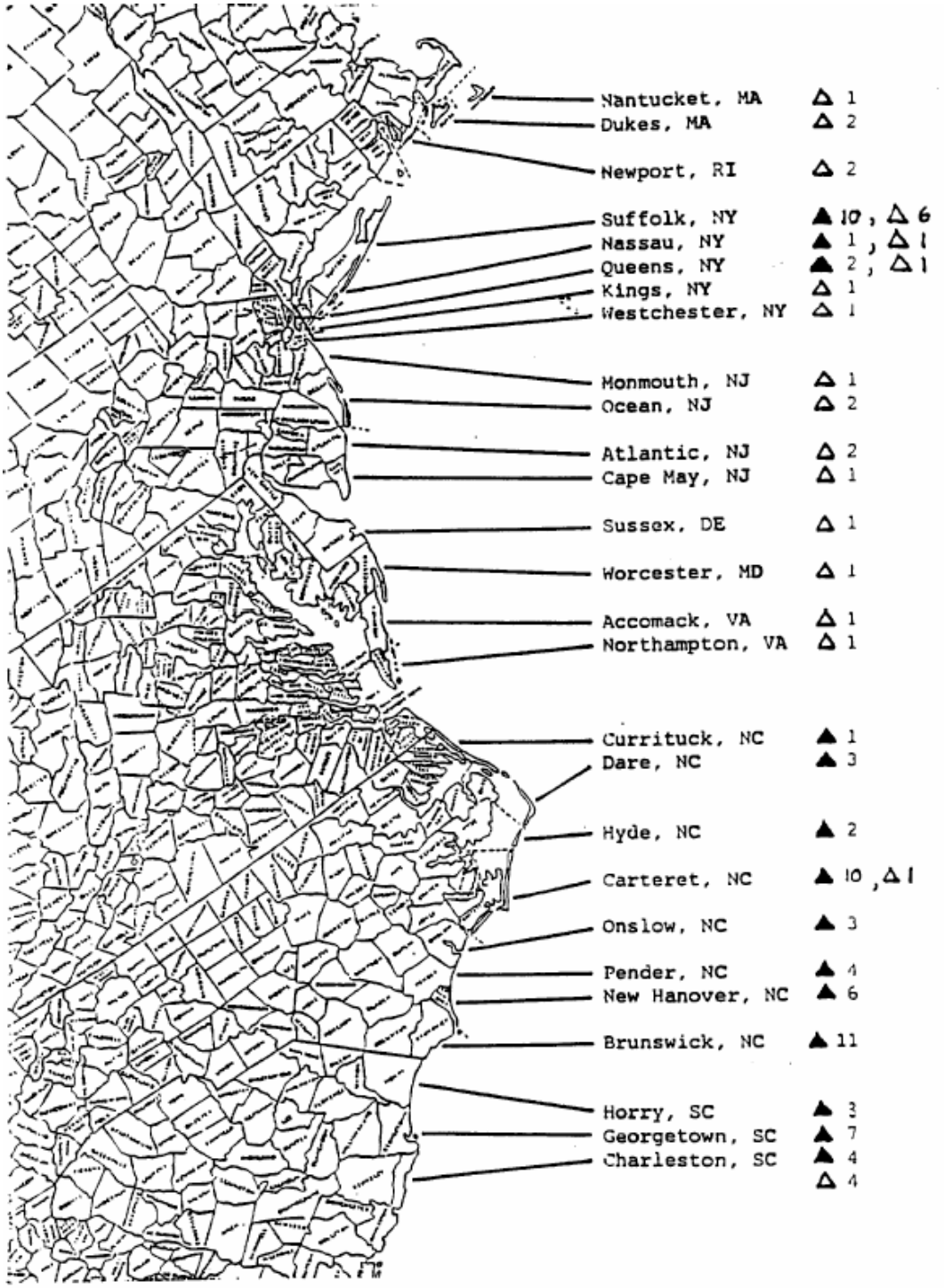
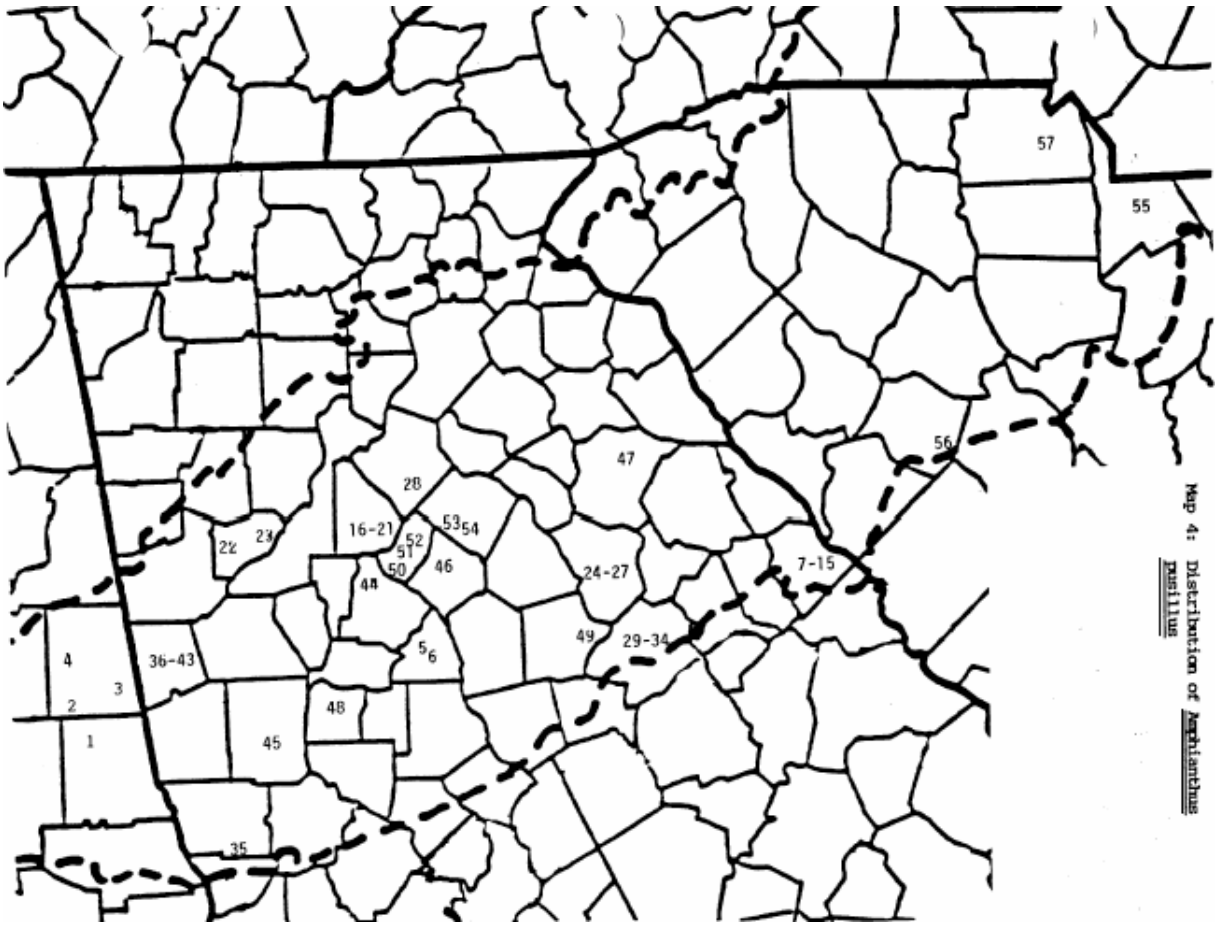
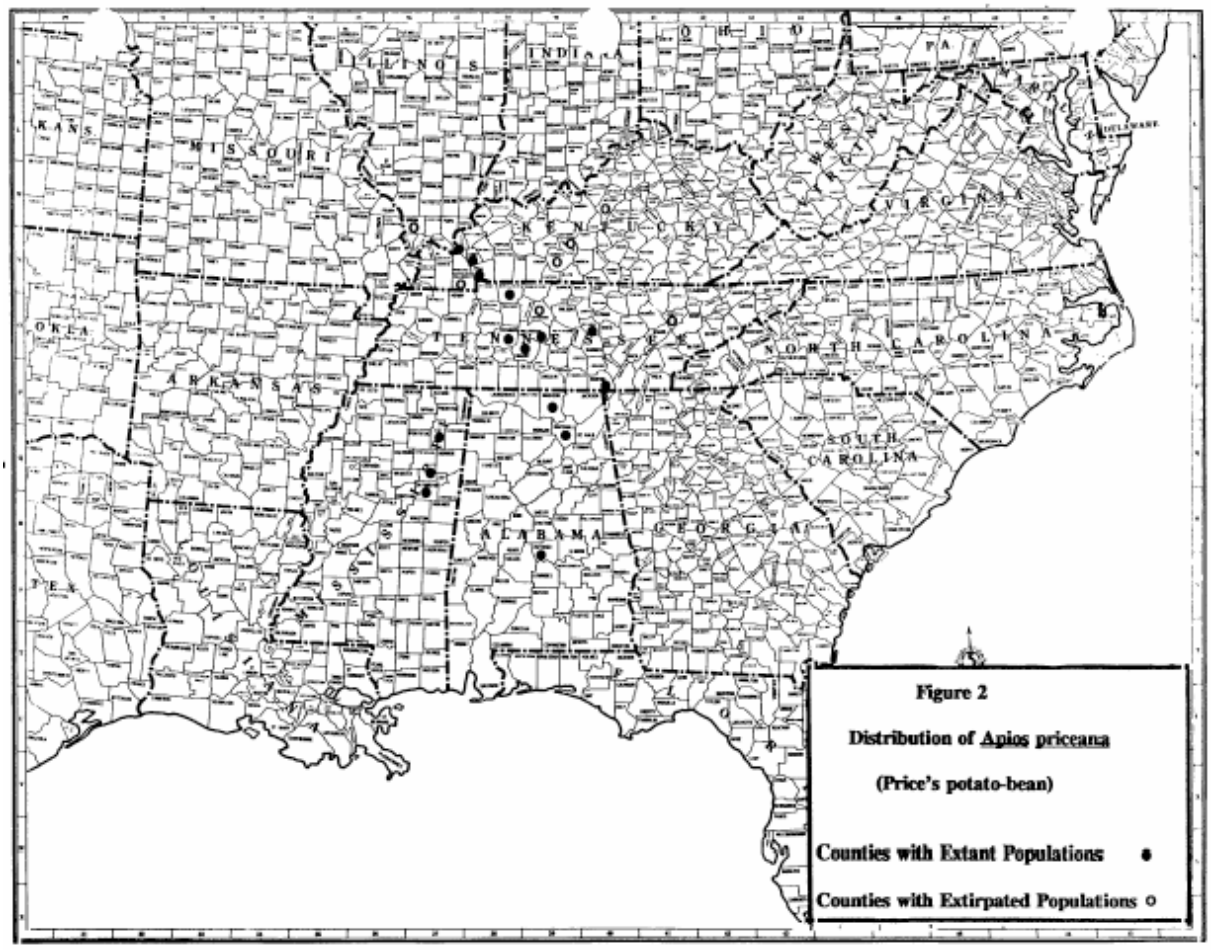


Figure 2. Range of seabeach amaranth (Amaranthus pumilus).
▲ Extant population in county (followed by number of extant populations).
△ Extirpated population in county (followed by number of extirpated populations).

Amaranthus pumilus **(seabeach amaranth)**



Amphianthus pusillus **(little amphianthus)**



Apios priciana **(Price's potato-bean)**

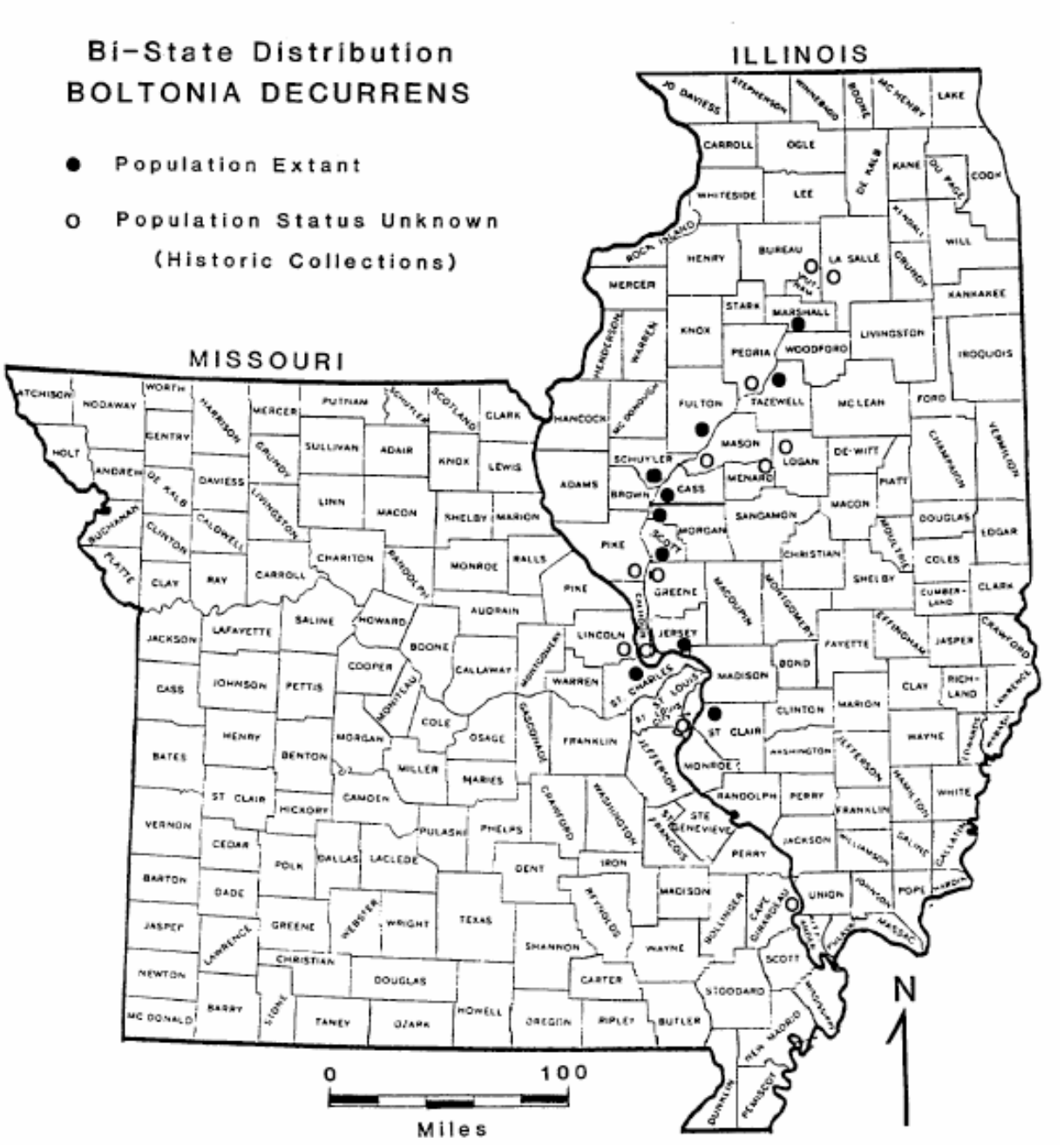


FIGURE 1. Historic and extant populations of Boltonia decurrens in Illinois and Missouri (modified from Morgan (1980) and Kurz (1981)).

Boltonia decurrens **(decurrent false-aster)**

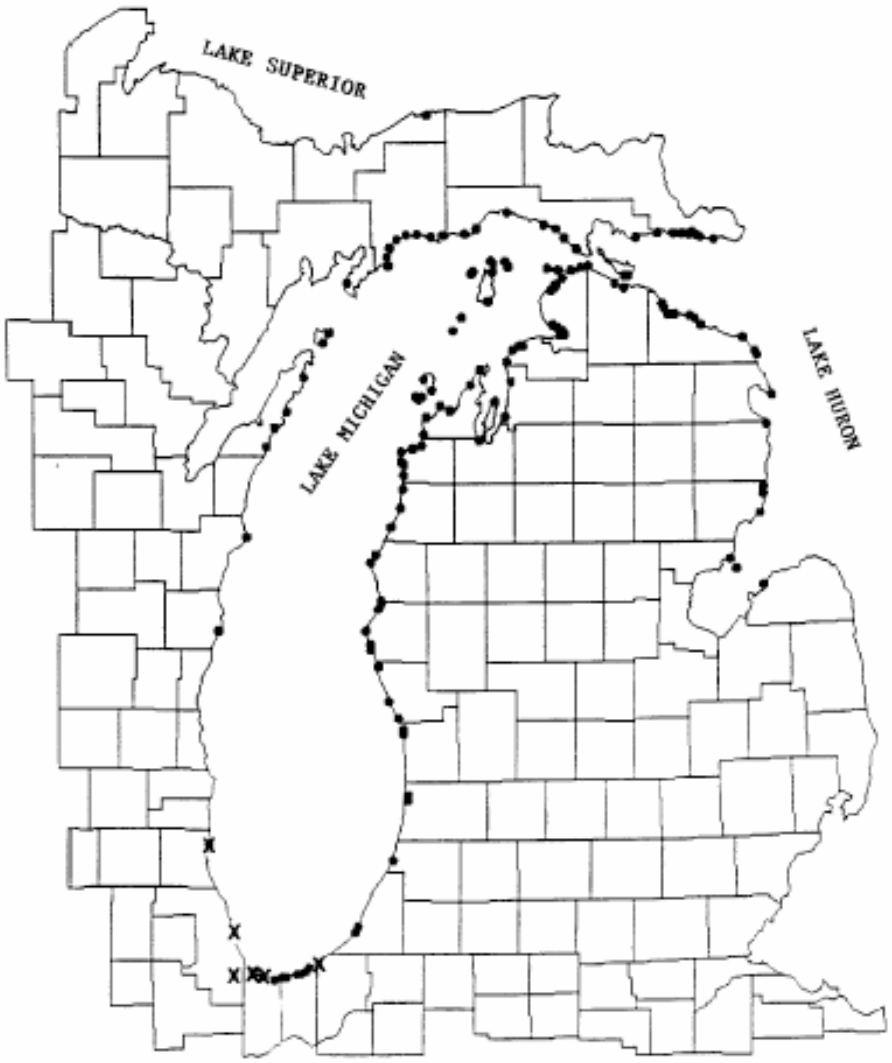
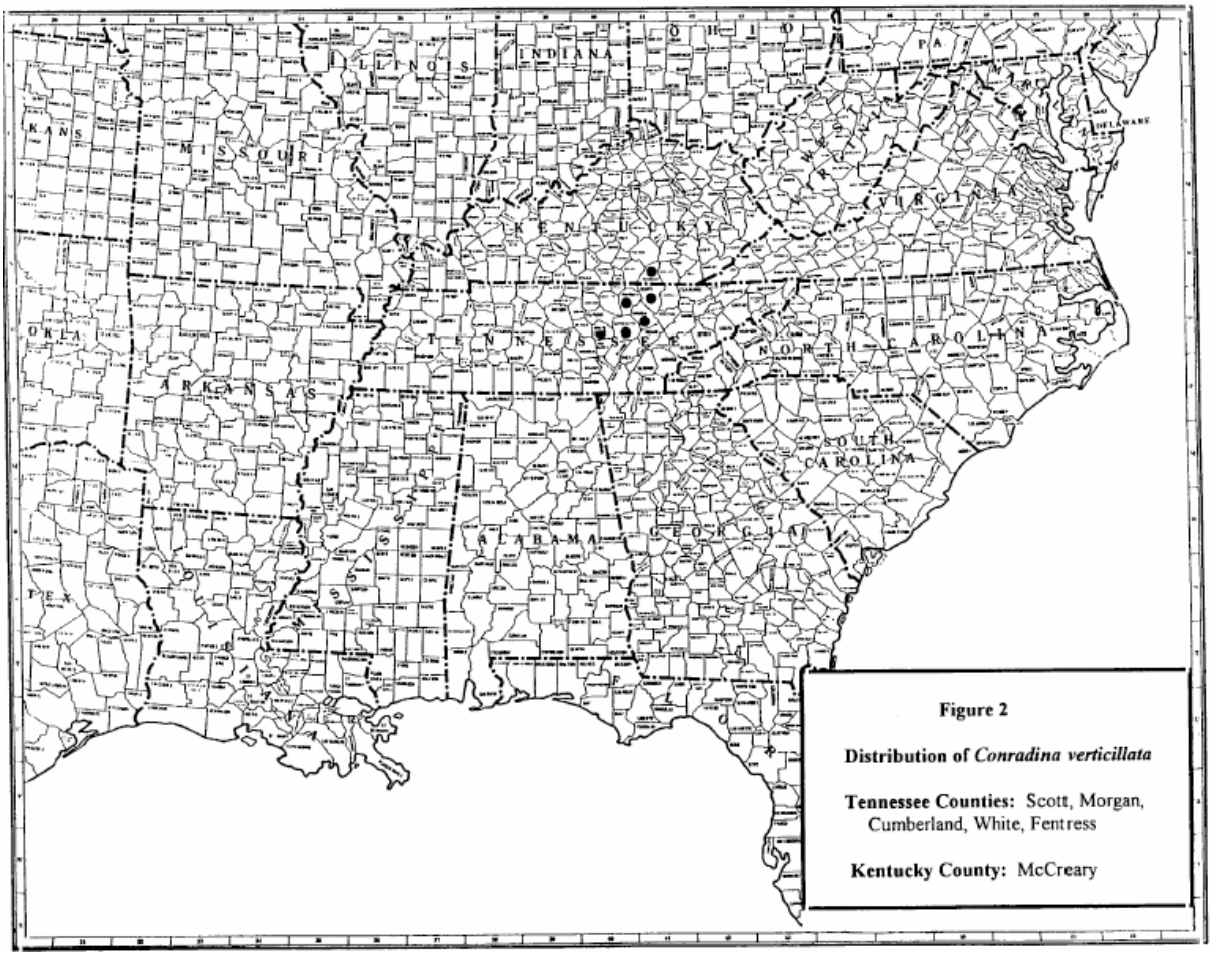


Figure 2. Distribution of *Cirsium pitcheri* in the United States. X marks known extirpated populations.

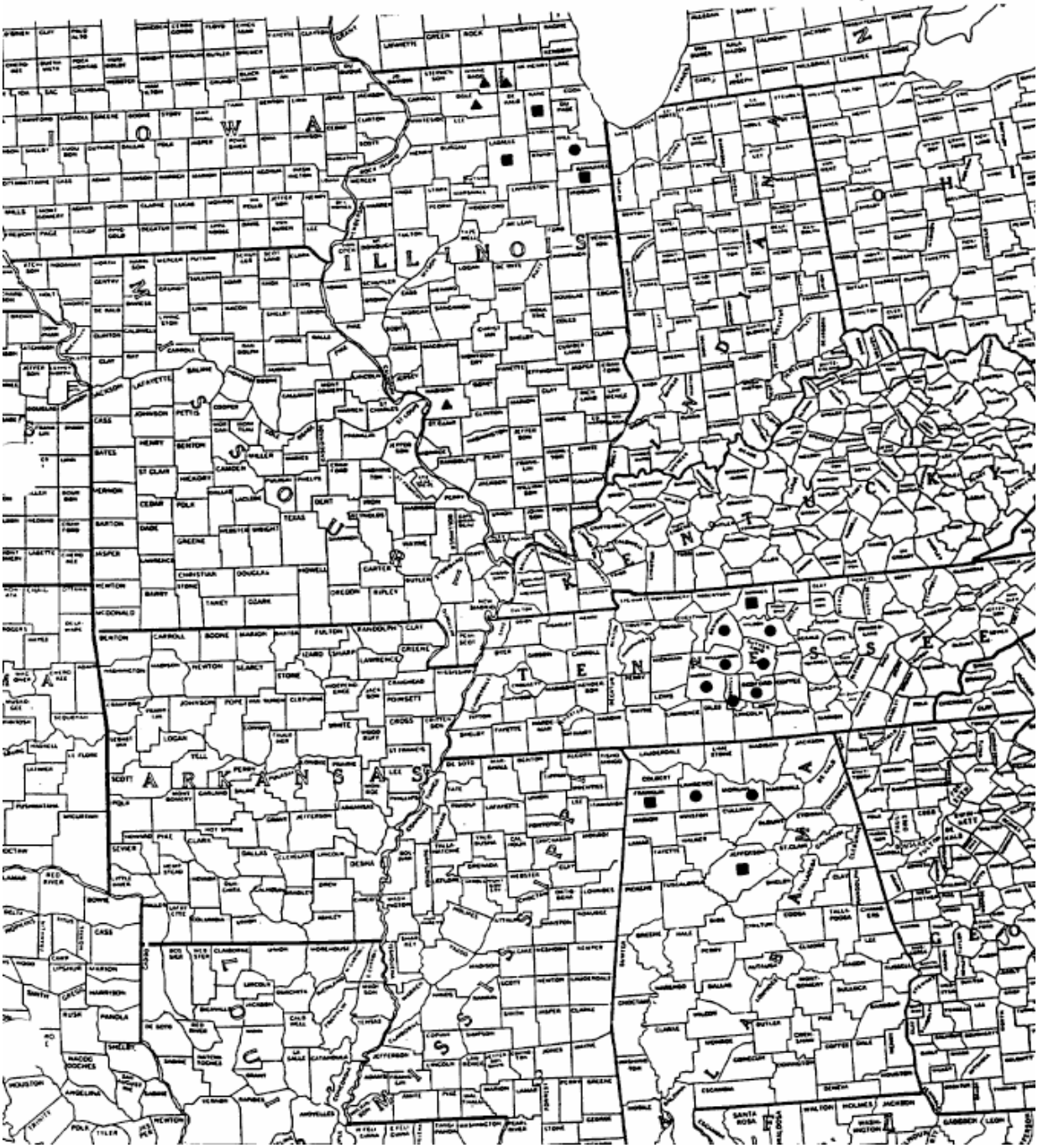
***Cirsium pitcheri* (Pitcher's thistle)**



Conradina verticillata **(Cumberland rosemary)**

Figure 1. Distribution and Status of *Dalea foliosa*

● = Extant population(s)
■ = Historic record with voucher specimen
▲ = Referenced as historic without voucher specimen



Dalea foliosa **(leafy prairie-clover)**

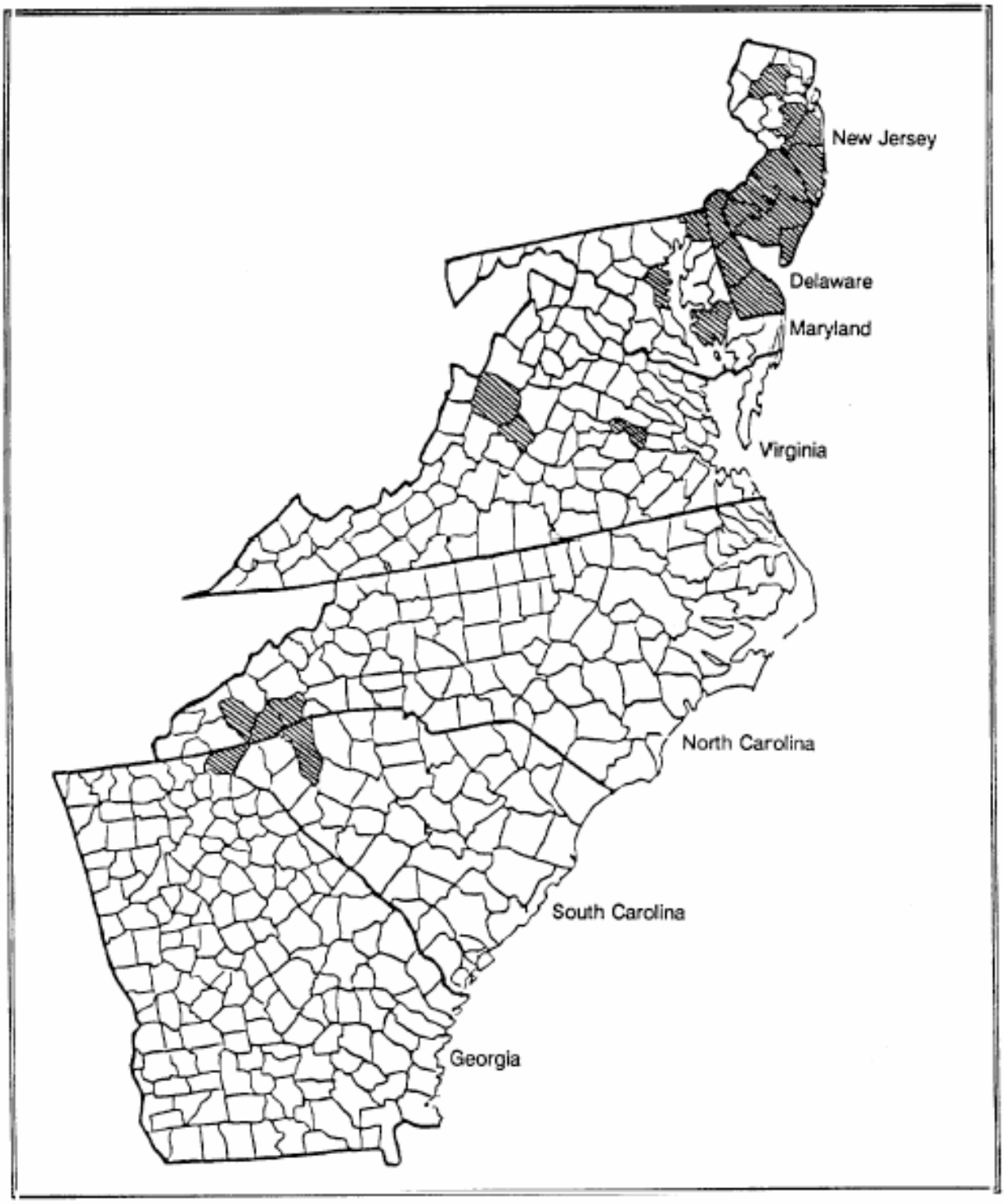
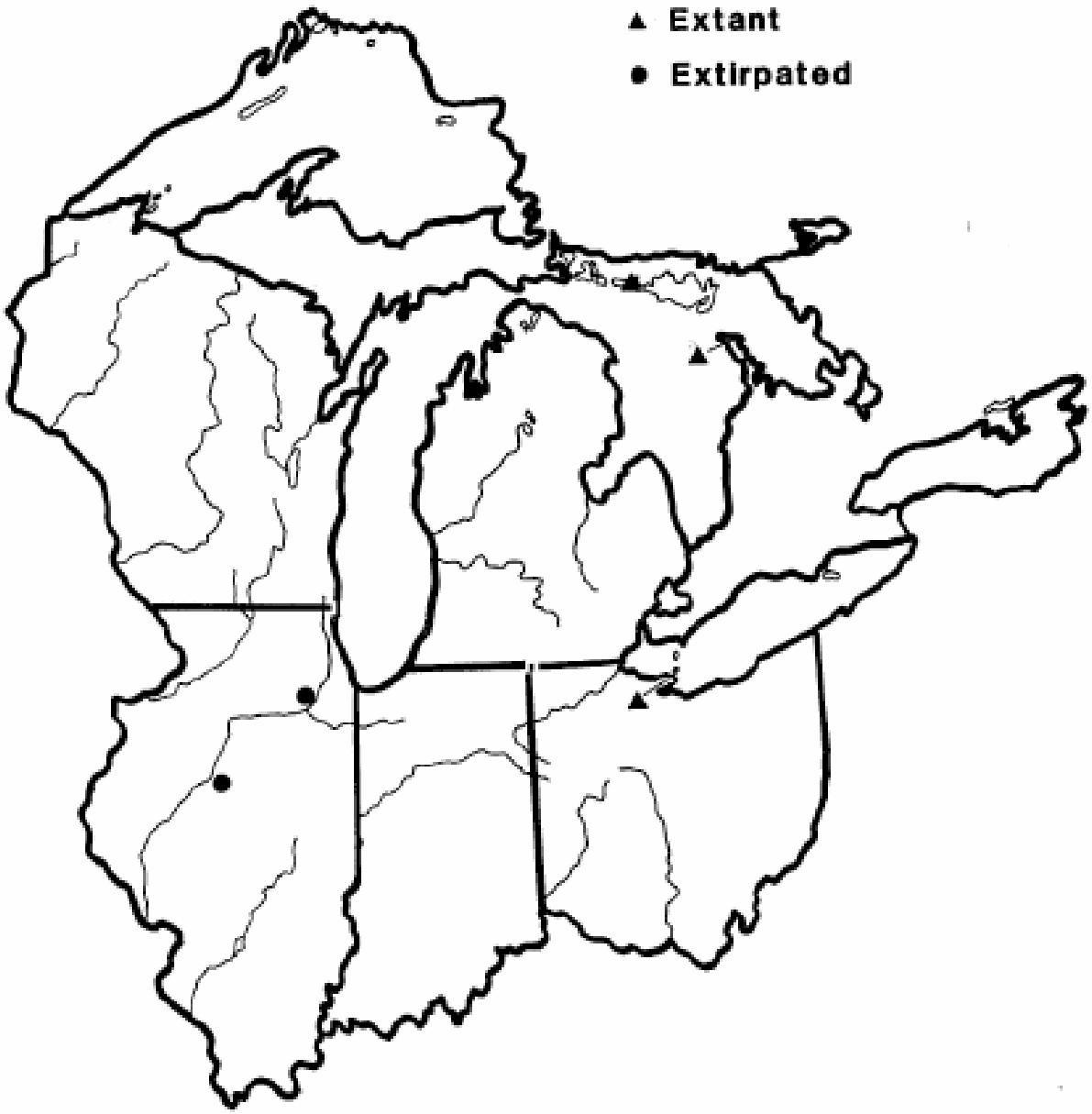


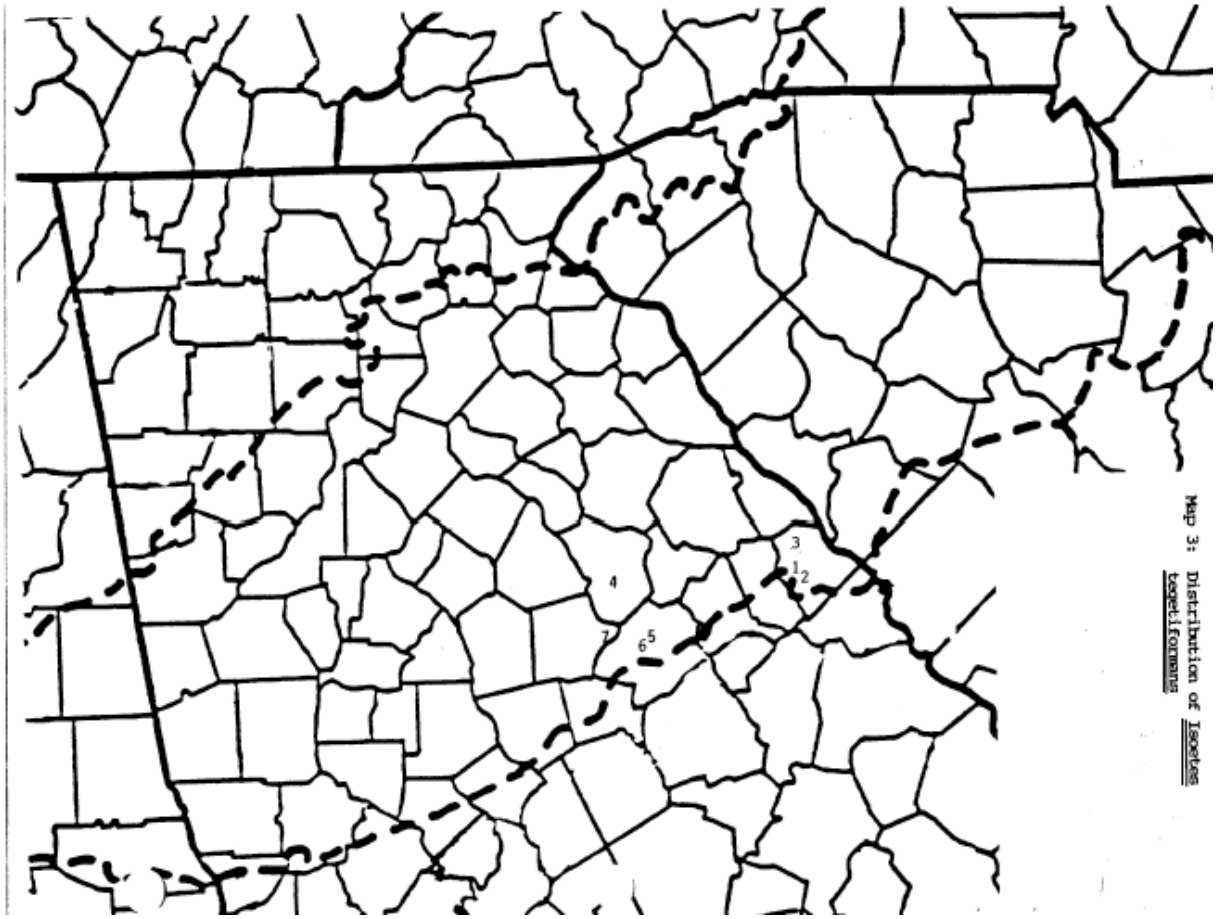
Figure 1. Distribution of Helonias bullata.

Helonia bullata **(swamp pink)**

Figure 1. Distribution of Hymenoxys acaulis var. glabra



***Hymenoxys acaulis* var. *glabra* (lakeside daisy)**



Isoetes tegetiformans **(mat-forming quillwort)**

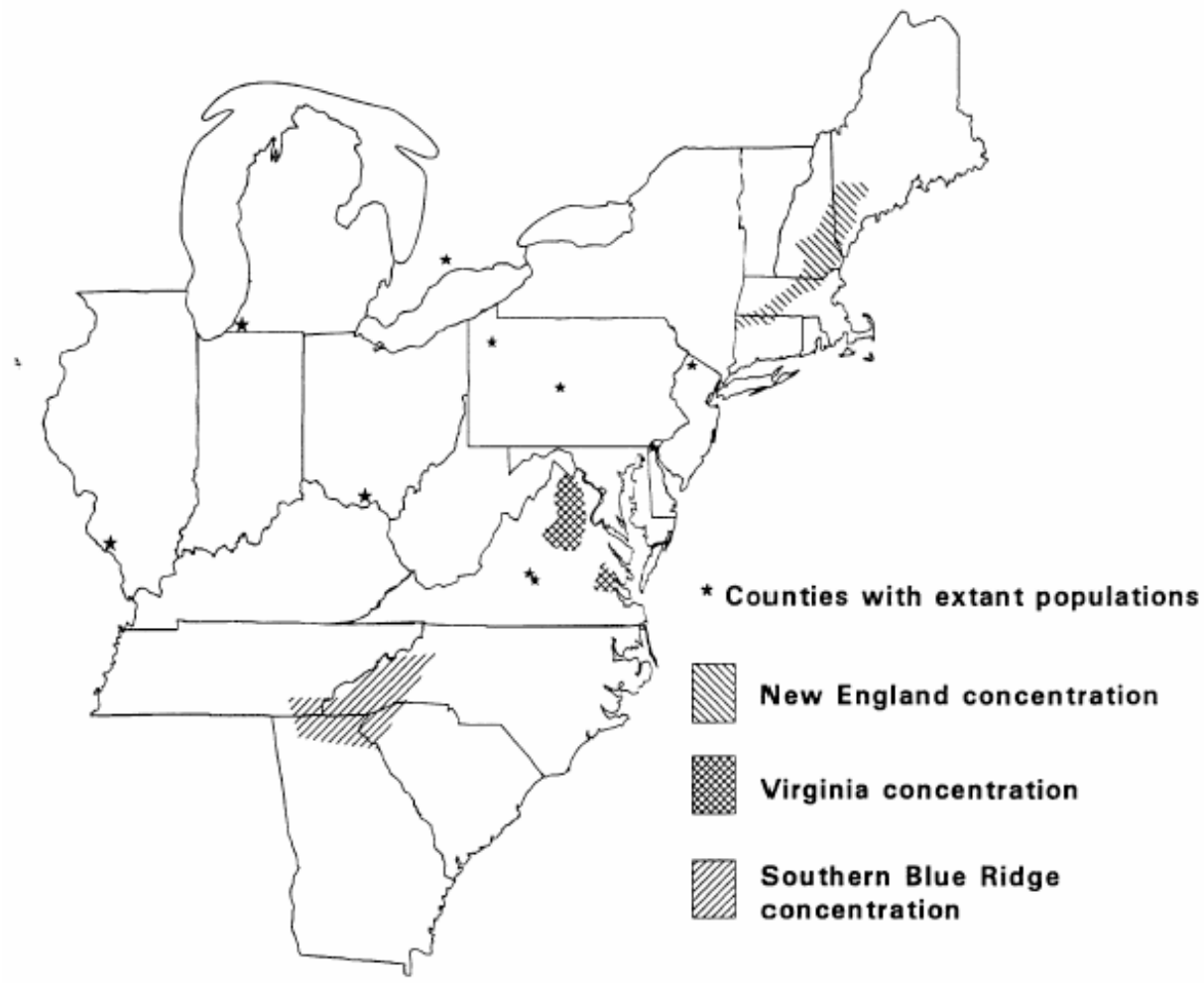


Figure 5. Population concentrations of *Isotria medeoloides*

Isotria medioloides **(small whorled pogonia)**

Figure 2. Map of the Southeastern United States showing the distribution of Lindera melissifolia. (Adapted from Morgan, 1983).

Lindera mellisifolia **(pondberry)**

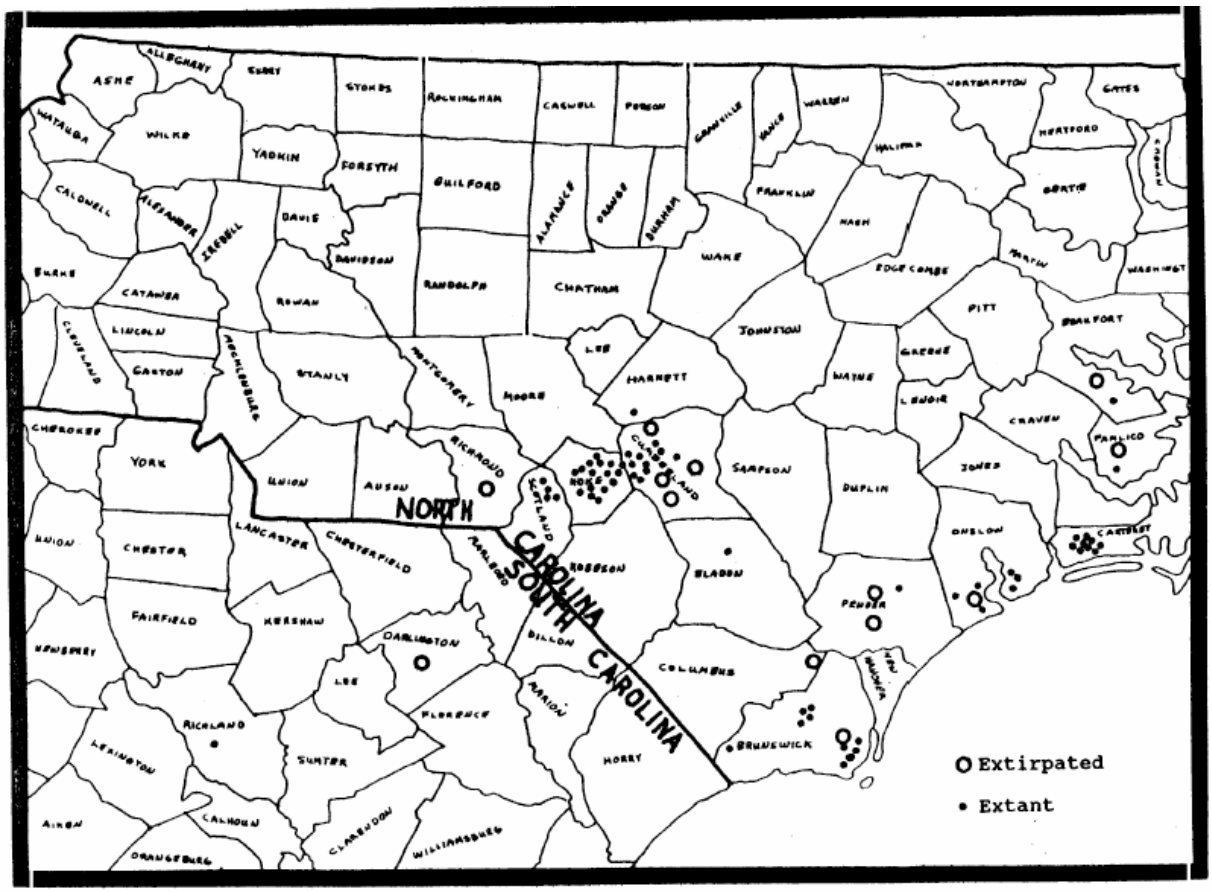
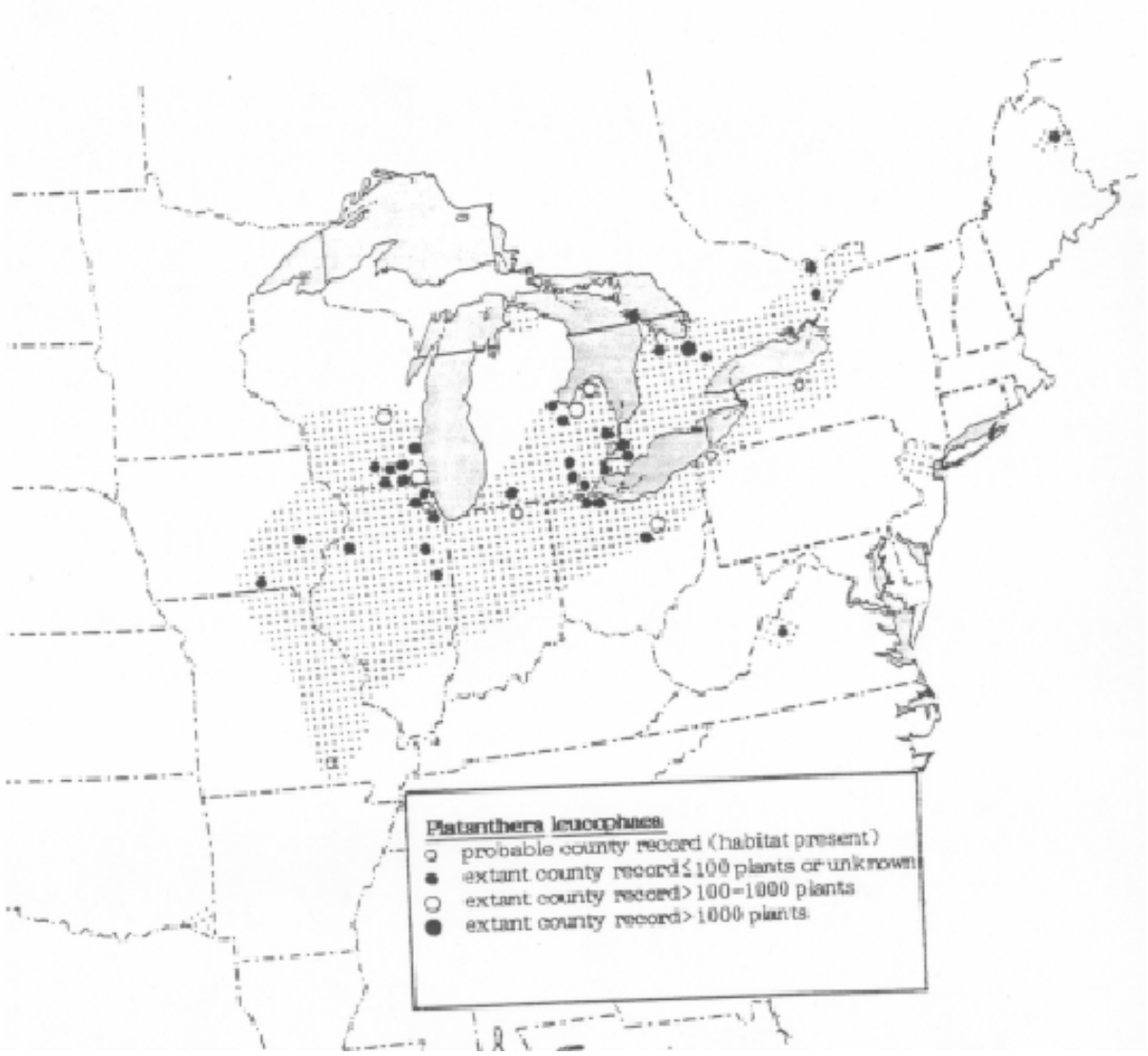


FIGURE 2. DISTRIBUTION O[F] *Lysimachia asperulifolia*

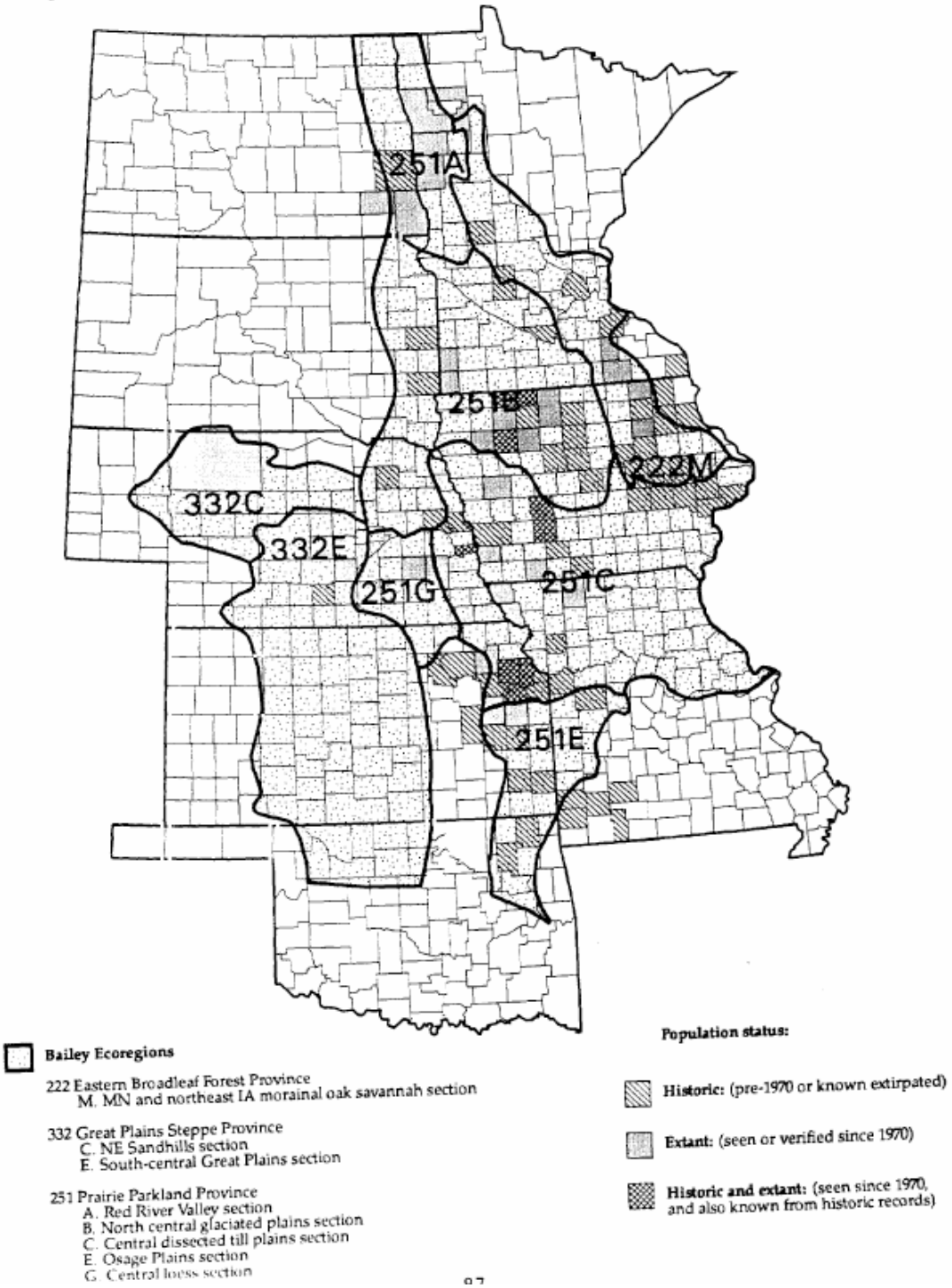
Lysimachia asperulifolia **(rough-leaved loosestrife)**

Figure 2. Former range and current distribution of the eastern prairie fringed orchid in North America with population size estimates by county (Reproduced from Bowles 1983).

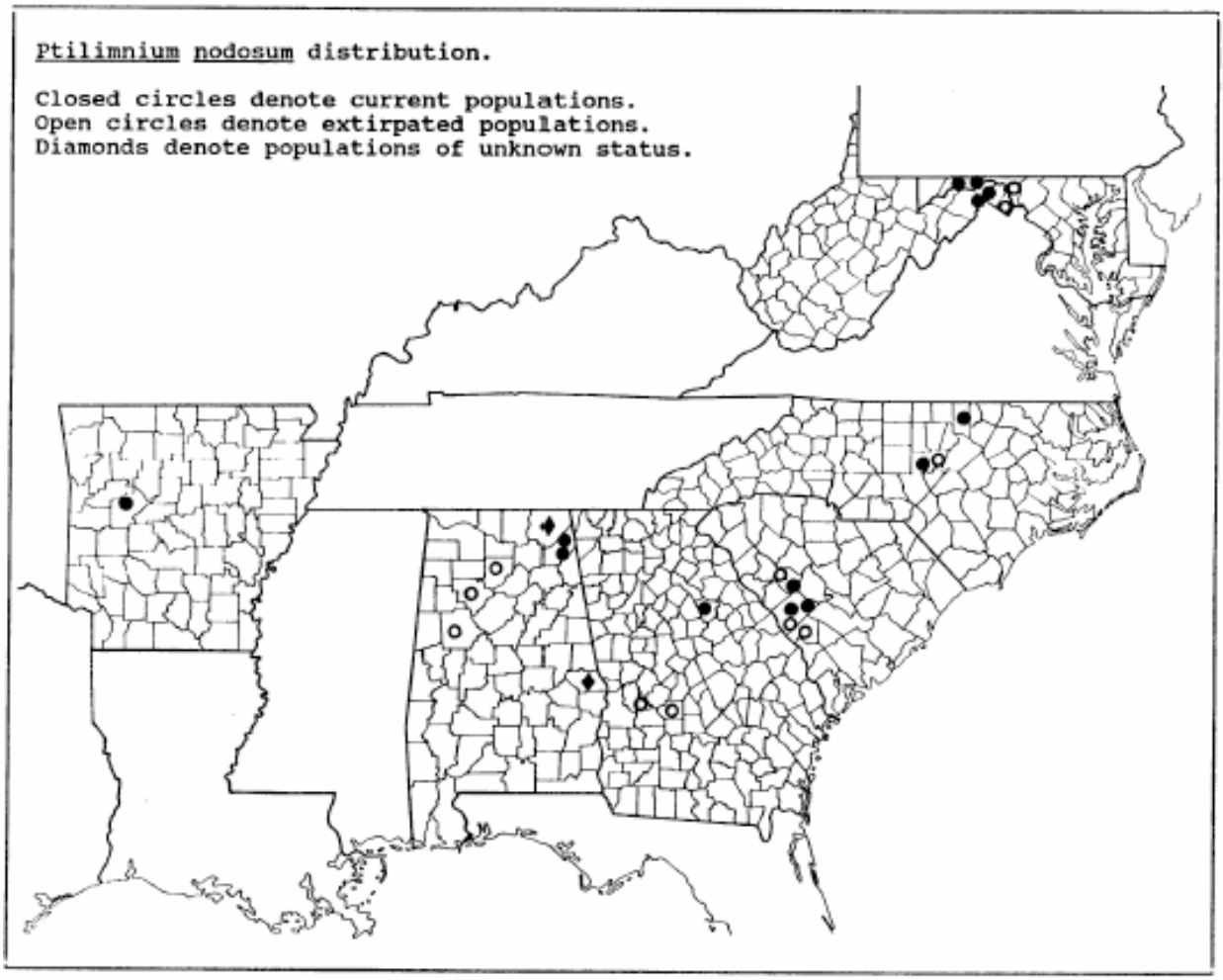


***Plantanthera leucophaea* (eastern prairie fringed orchid)**

Figure 2. Present and historical distribution of *Plantanthera praeclara*. Data from state Natural Heritage Program databases. Ecoregions follow Bailey 1994.



***Platanthera praeclara* (western prairie fringed orchid)**



Ptilimnium nodosum **(harperella)**

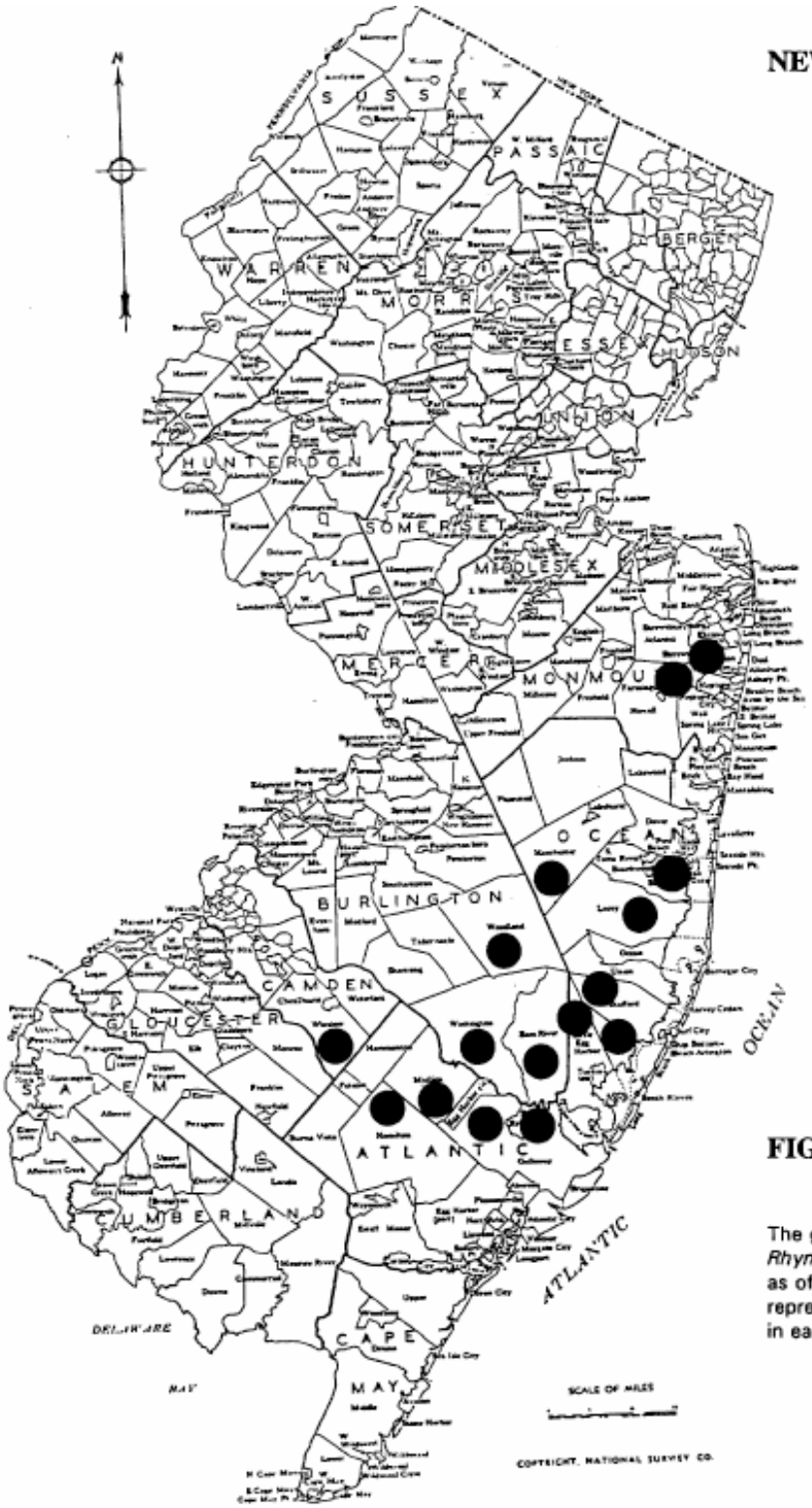
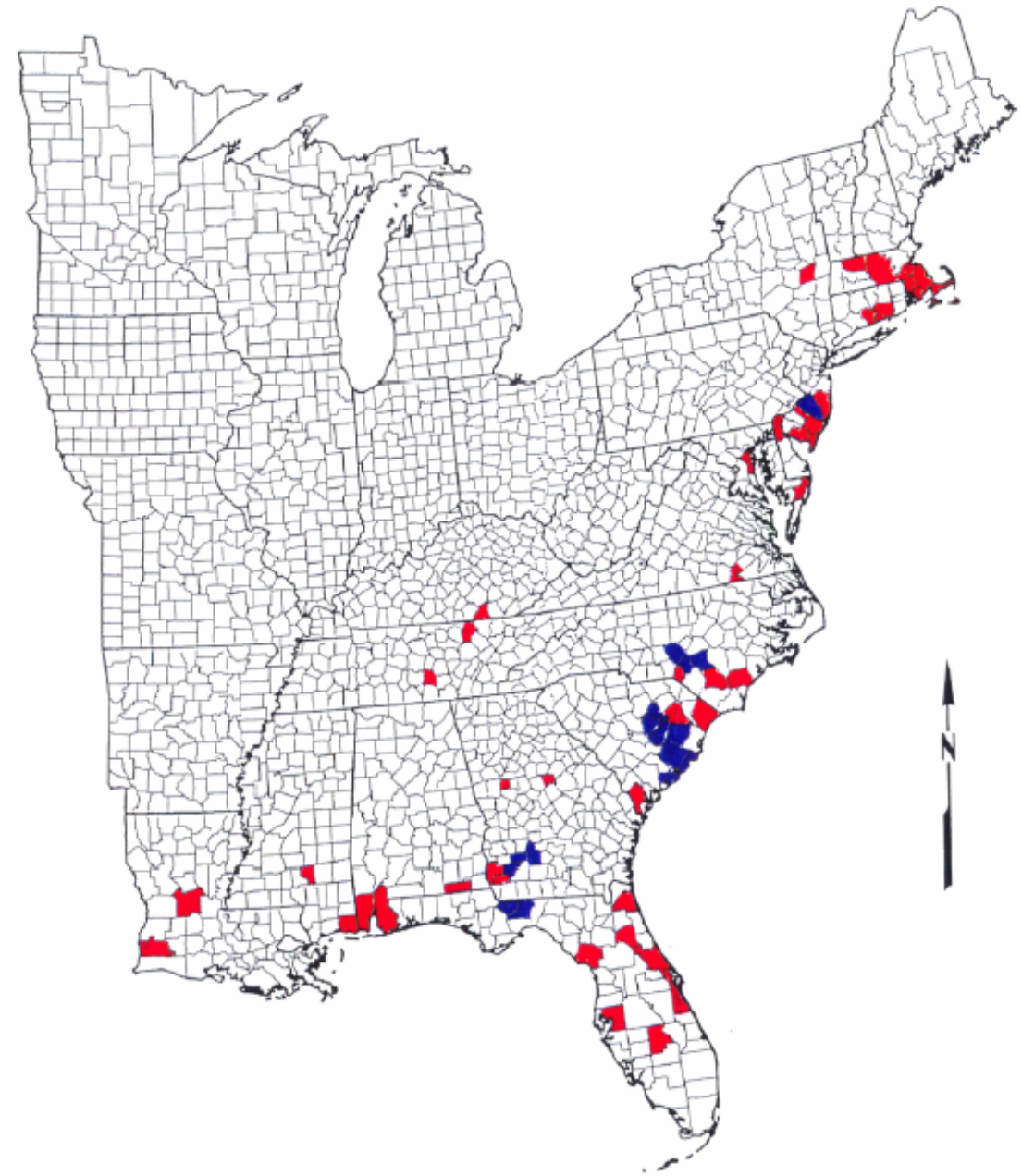


FIGURE 2.

The general distribution of *Rhynchospora knieskernii* as of July 1993. The numbers represent the extant occurrences in each municipality.

***Rhynchospora knieskernii* (Knieskern's beaked-rush)**

Figure 1. General Distribution *of Schwalbea americana* **(historic and extant)**



***Schwalbea americana* (American chaffseed)**

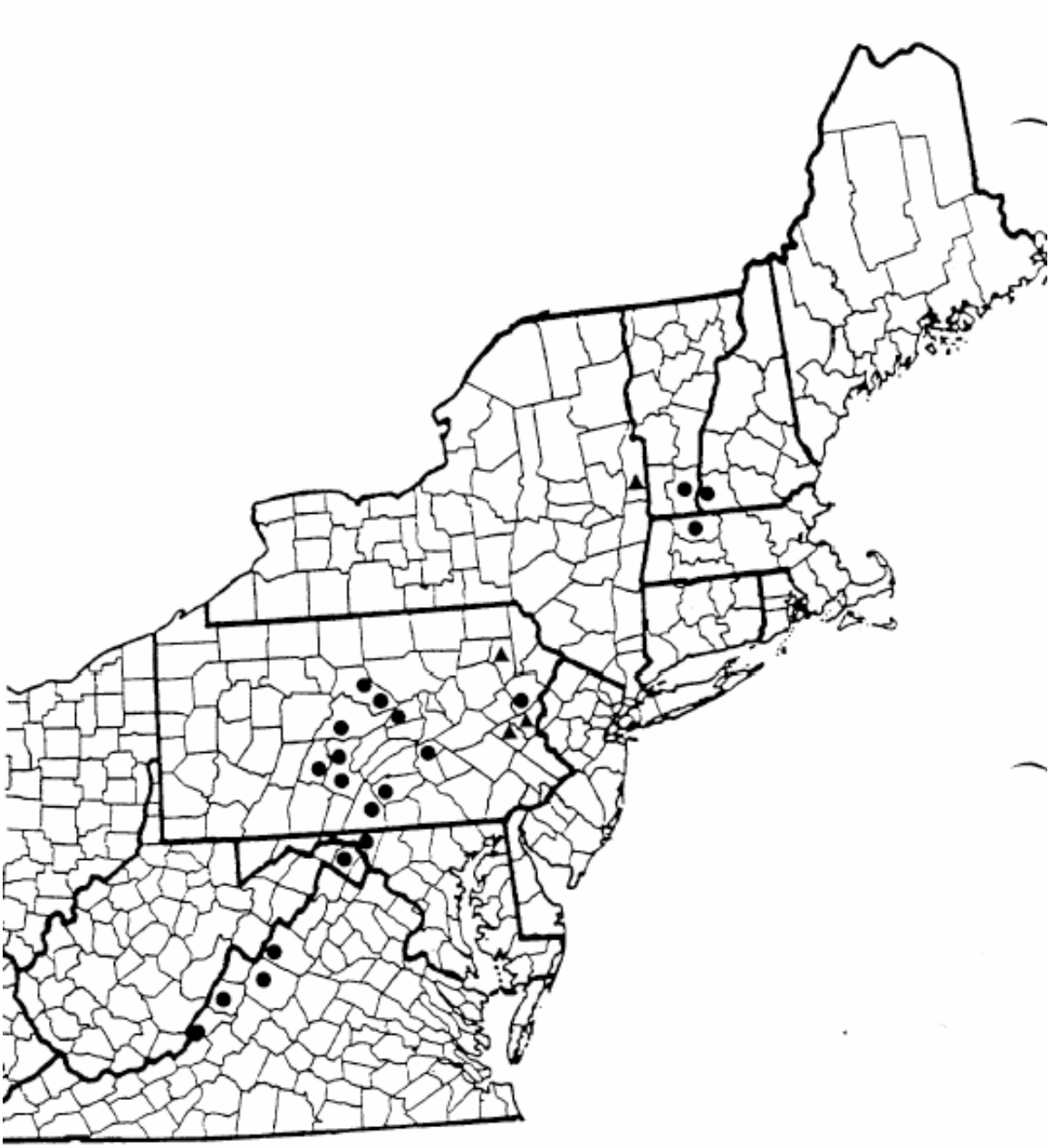
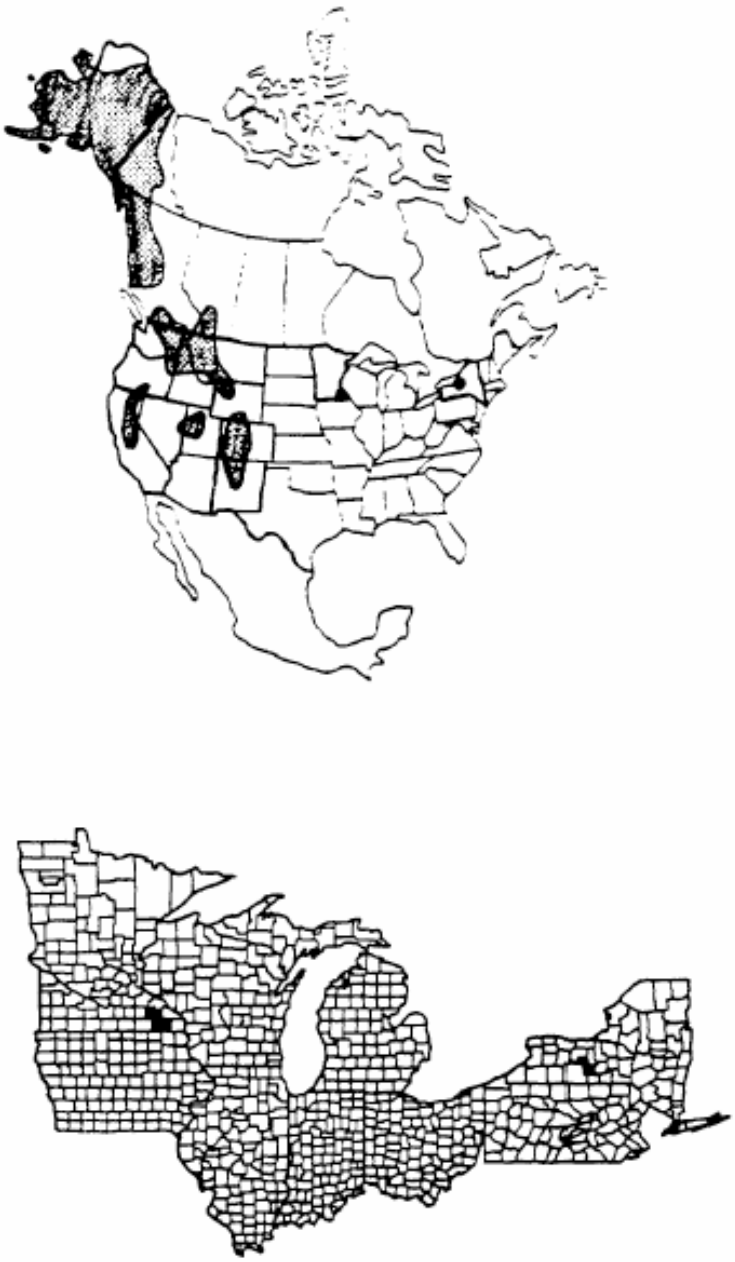


Figure 4. The distribution of *Scirpus ancistrochaetus* in the northeastern United States. Counties with extant (●) versus historic only (▲) occurrences.

Scirpus ancistrochaetus **(northeastern bulrush)**

Figure 2. **Ranges of *Sedum integrifolium* (roseroot) (shaded area) and *S. integrifolium* ssp. *leedyi* (Leedy's roseroot) (black dots and blackened counties).**



***Sedum integrifolium* ssp. *leedyi* (Leedy's roseroot)**

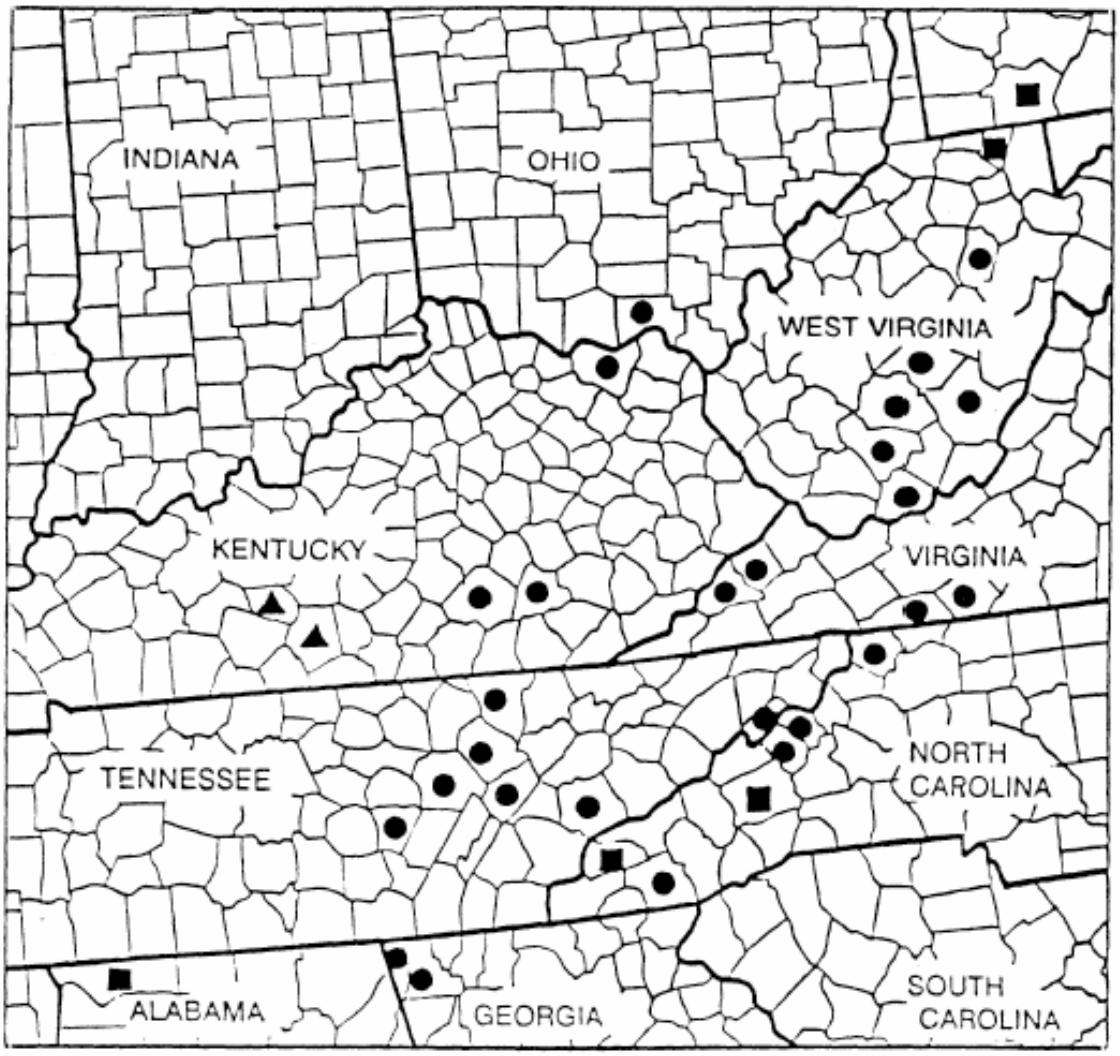


FIGURE 2. DISTRIBUTION OF *SPIRAEA VIRGINIANA*

Spiraea virginiana **(Virginia spiraea)**

APPENDIX B.2 Distribution of Selected Vertebrate Animal Species

3. Amend § 17.95(e) by adding critical habitat of the "Cape Fear Shiner," in the same alphabetical order as the species occurs in § 17.11(h).

§ 17.95 Critical habitat—fish and wildlife.

(e) * * *

* * * * *

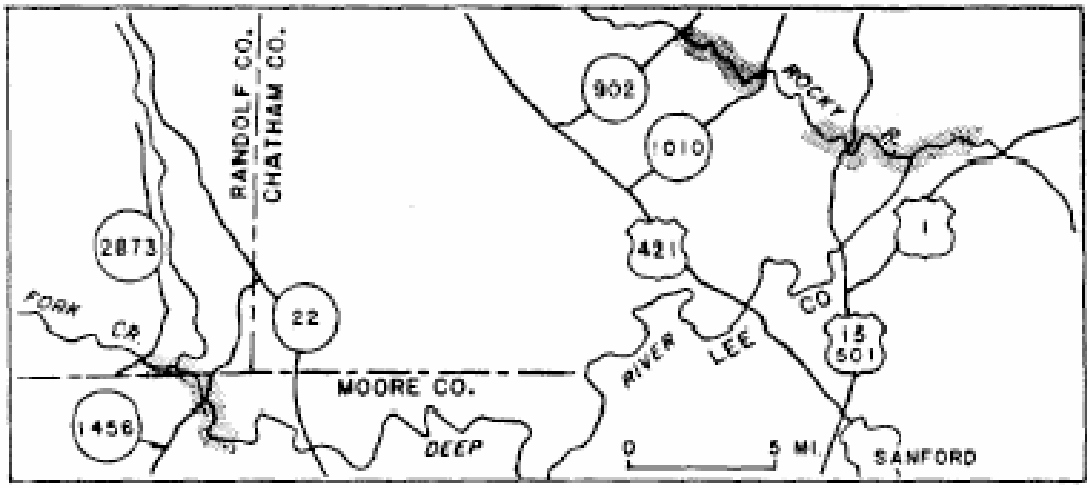
Cape Fear Shiner (Notropis mekistocholas)

(1) *North Carolina.* Chatham County. Approximately 4.1 river miles of the Rocky River from North Carolina State Highway 902 Bridge downstream to Chatham County Road 1010 Bridge;

(2) *North Carolina.* Chatham and Lee Counties. Approximately 0.5 river mile of Bear Creek, from Chatham County Road 2156 Bridge downstream to the Rocky River, then downstream in the Rocky River (approximately 4.2 river miles) to the Deep River, then downstream in the Deep River (approximately 2.6 river miles) to a point 0.3 river mile below the Moncure, North Carolina, U.S. Geological Survey Gaging Station; and

(3) *North Carolina.* Randolph and Moore Counties. Approximately 1.5 river miles of Fork Creek, from a point 0.1 river mile upstream of Randolph County Road 2873 Bridge downstream to the Deep River then downstream approximately 4.1 river miles of the Deep River in Randolph and Moore Counties, North Carolina, to a point 2.5 river miles below Moore County Road 1456 Bridge.

* * * * *



Dated: August 26, 1987.

Notropis mekistocholas **(Cape Fear shiner)**

Figure 3. Frequent occurrences of pallid sturgeon. - -☆

Scaphirhynchus albus **(pallid sturgeon)**

3. Add the following as a special rule to § 17.44:

§ 17.44 Special rules—fishes.

* * * * *

(k) Niangua Darter, *Etheostoma nianguae.*

(1) No person shall take the species, except in accordance with applicable State fish and wildlife conservation laws and regulations in the following instances: educational purposes, scientific purposes, the enhancement of propagation or survival of the species, zoological exhibition, and other conservation purposes consistent with the Act.

(2) Any violation of applicable State fish and wildlife conservation laws or regulations with respect to the taking of this species will also be a violation of the Endangered Species Act.

(3) No person shall possess, sell, deliver, carry, transport, ship, import, or export, by any means whatsoever, any such species taken in violation of these regulations or in violation of applicable State fish and wildlife conservation laws or regulations.

(4) It is unlawful for any person to attempt to commit, solicit another to commit, or cause to be committed, any offense defined in paragraphs (1) through (3) of this paragraph.

* * * * *

4. Amend § 17.95(e) by adding critical habitat for the Niangua darter, in the same sequence that it appears in § 17.11(h), as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

Niangua Darter

(Etheostoma nianguae)

Missouri. Big Tavern Creek, Miller County. Big Tavern Creek and 50 feet along each side of the creek from Highway 52 upstream to Highway 17.

NIANGUA DARTER

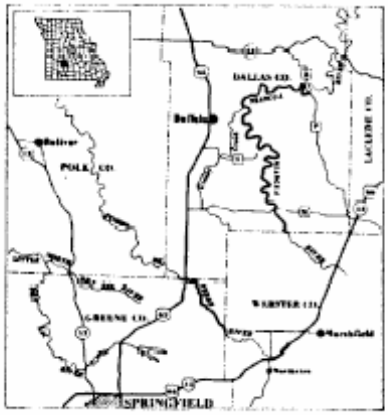
Miller County, MISSOURI

Missouri. Niangua River, Dallas County. Niangua River and 50 feet on each side of the river, from county road K upstream to 1 mile beyond county road M to the Webster County line.

Missouri. Pomme de Terre River, Greene County. Pomme de Terre River and 50 feet on each side of the river from Highway 65 upstream to the Webster County line.

NIANGUA DARTER

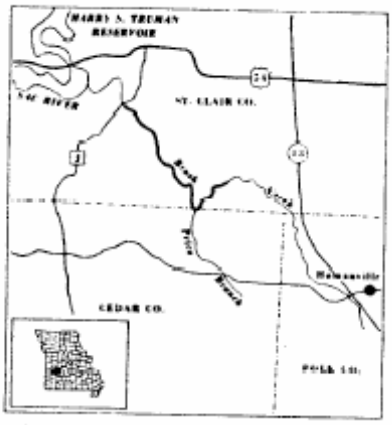
Dallas and Greene Counties, MISSOURI



Missouri. Brush Creek, Cedar, and St. Clair Counties. Brush Creek and 50 feet on each side of the creek from 1000 feet upstream of county road J to the boundary of Sections 34 and 35, Township 36 N, Range 25 W.

NIANGUA DARTER

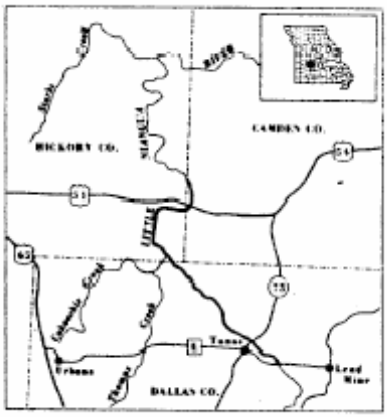
Cedar and St. Clair Counties, MISSOURI



Missouri. Little Niangua River, Camden, Dallas, and Hickory Counties. Little Niangua River and 50 feet on each side of the river from 1 mile below (downstream of) Highway 54, Camden County, to county road E, Dallas County.

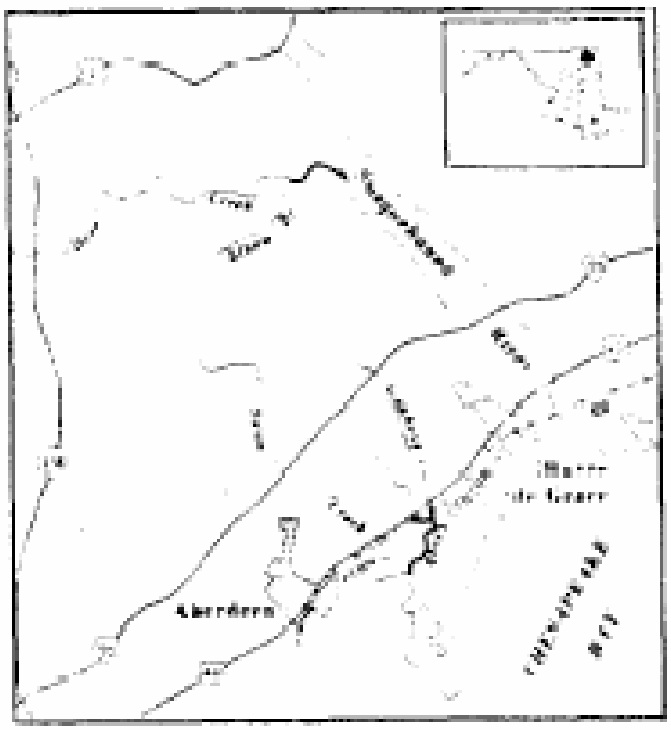
NIANGUA DARTER

Camden, Dallas and Hickory Counties, MISSOURI



***Etheostoma nianguae* (Niangua darter)**

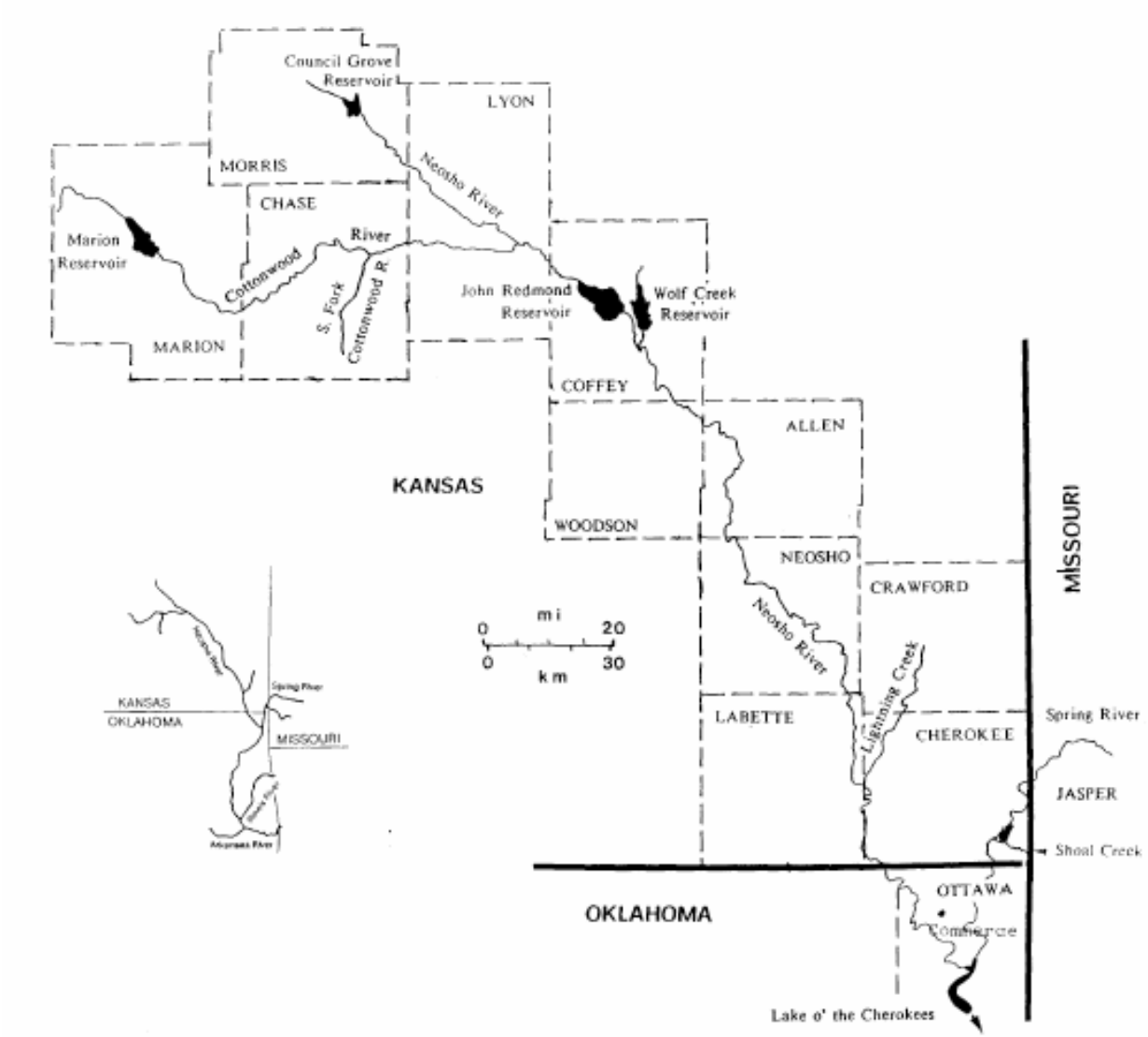
with the Susquehanna River. (2) Gasheys Run [also known as Gasheys Creek] main channels of east and west forks from their overcrossing by old Penn Central Railroad [presently titled to National Railroad Passenger Corporation, Amtrak] south to their confluence, thence south to the confluence with Swan Creek.



Constituent elements of this habitat are considered to be quality and permanence of streamflow in shallow areas of the streams [riffles], and presence of unsilted rocky crevices for shelter and production of aquatic insects and snails for food.

* * * * *

Etheostoma sellare **(Maryland darter)**



Noturus placidus **(Neosho madtom)**

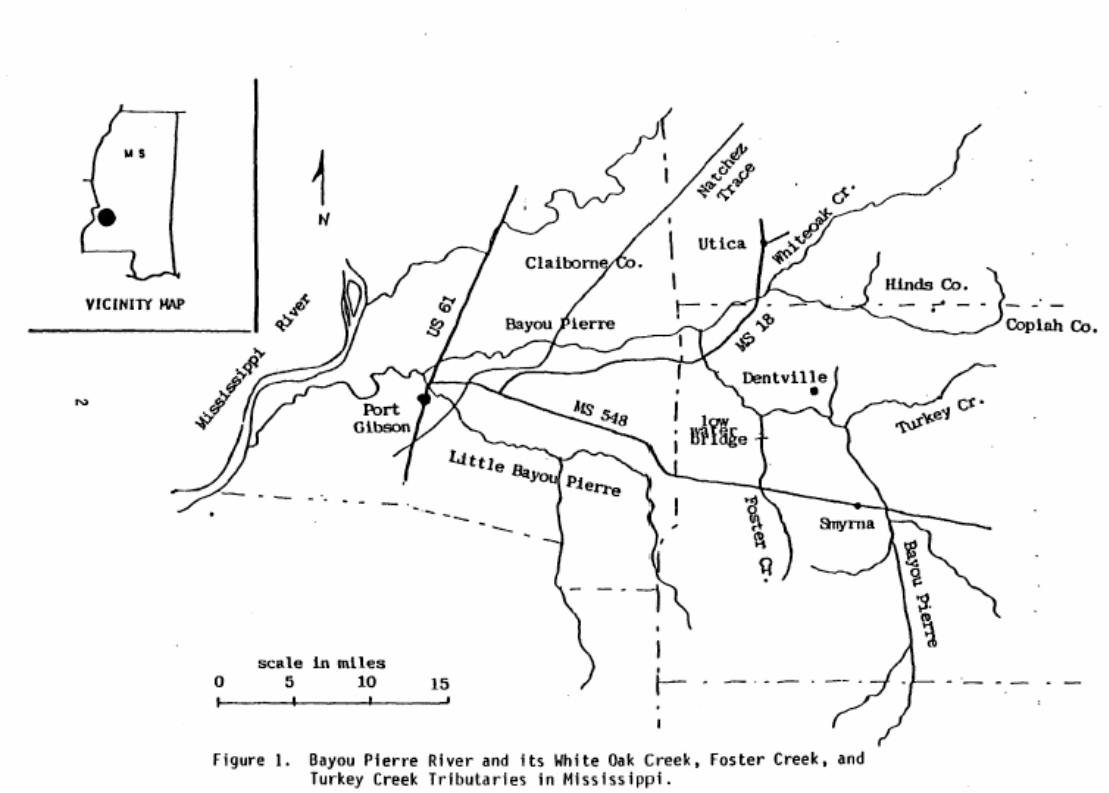
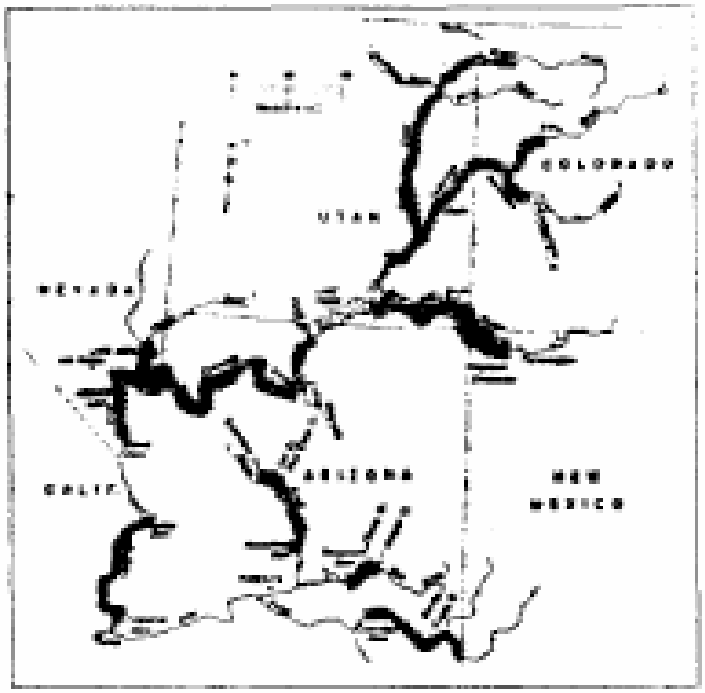
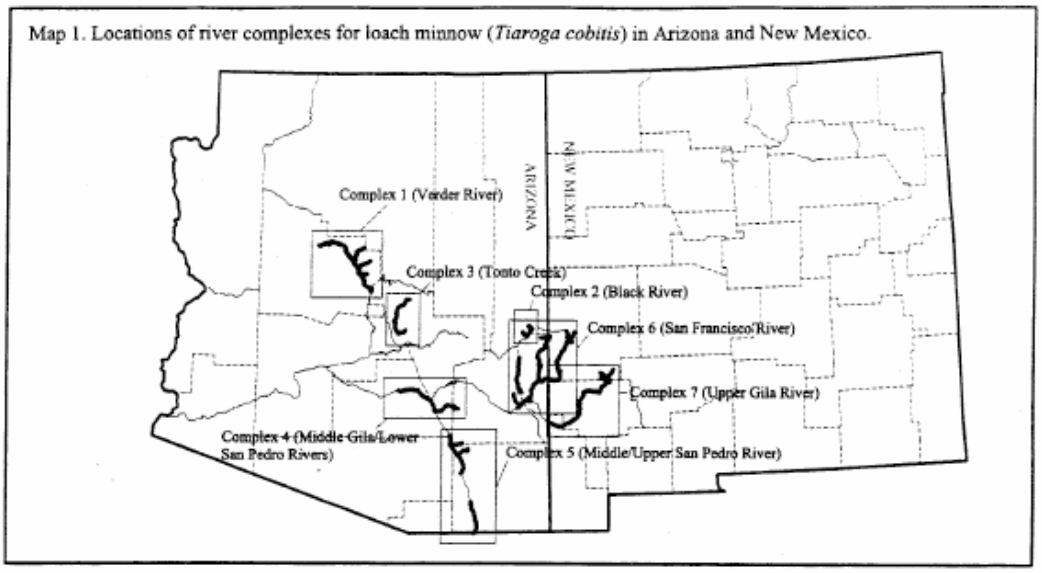


Figure 1. Bayou Pierre River and its White Oak Creek, Foster Creek, and Turkey Creek Tributaries in Mississippi.

Etheostoma rubrum **(Bayou Darter)**

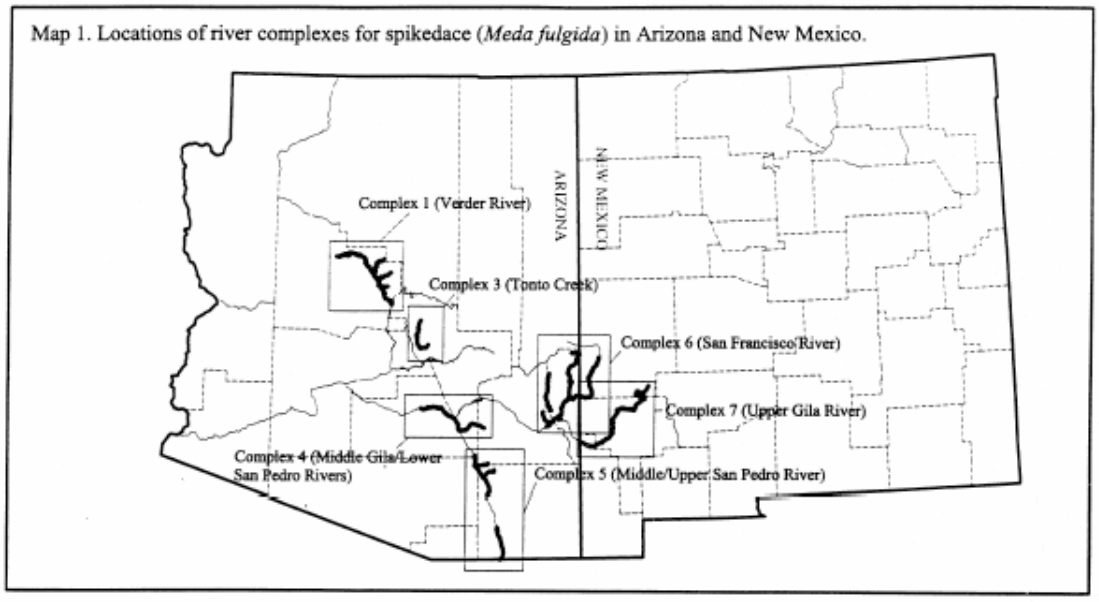


Xyrauchen texanus **(razorback sucker)**



LOACH MINNOW (*Tiaroga* (=*Rhinichthys*) *cobitis*)

***Tiaroga cobitis* (loach minnow)**



Spikedace (*Meda fulgida*)

***Meda fulgida* (spikedace)**

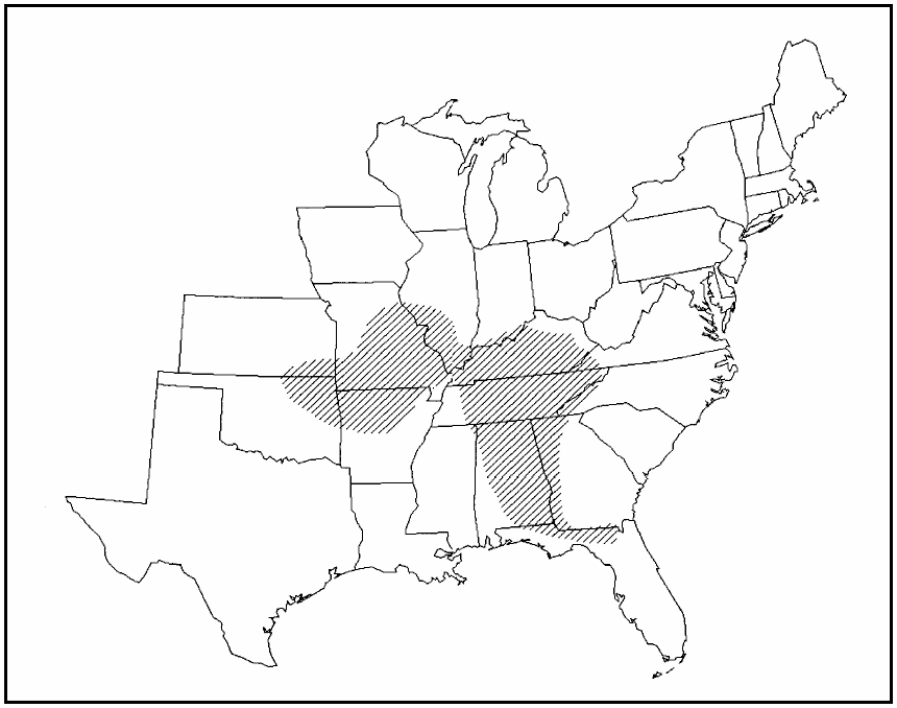


Figure 1. Approximate distribution of the gray bat (USFWS 1980)

Myotis grisescens (gray bat)

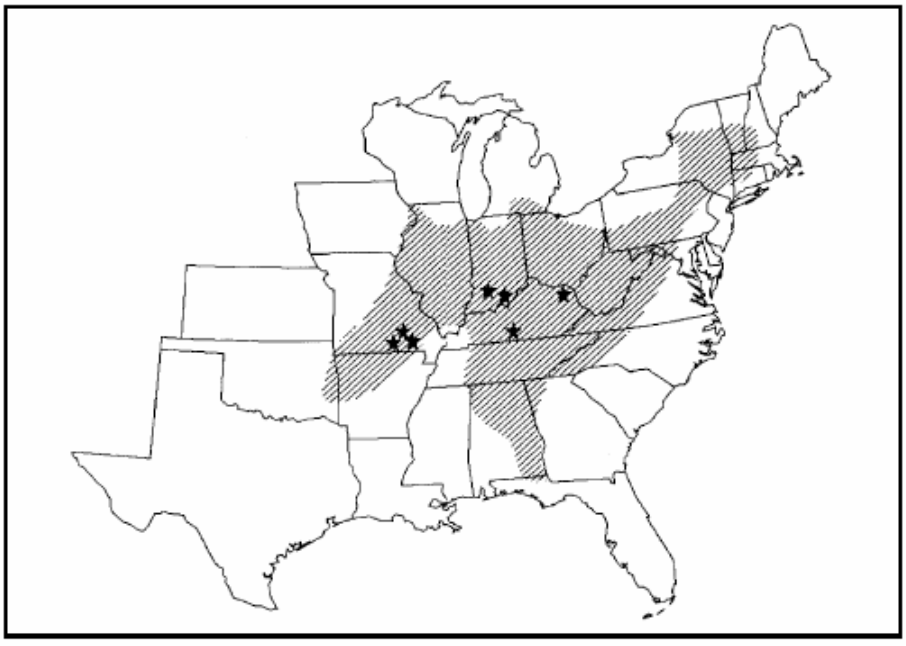
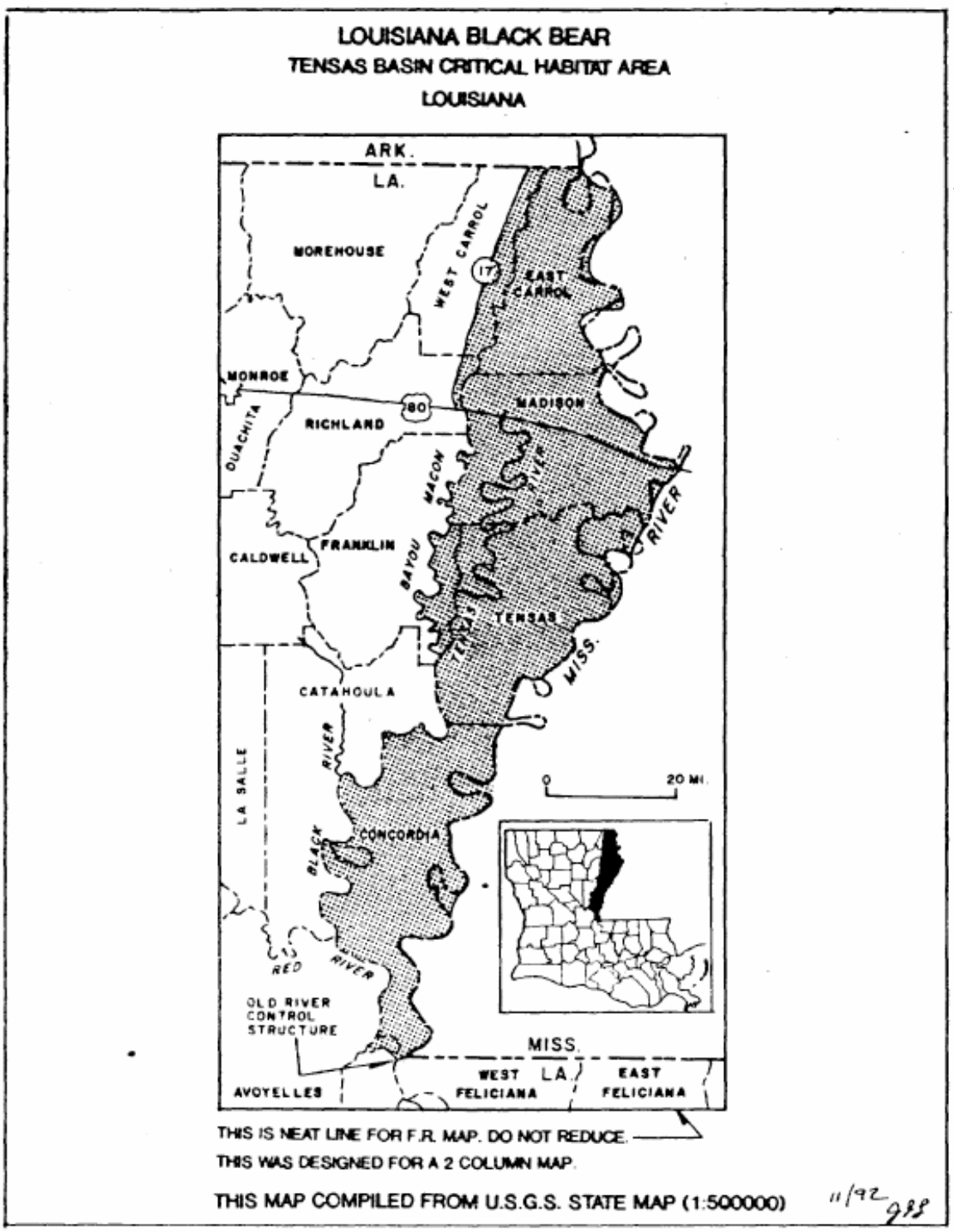


Figure 1. Distribution of Indiana bats in North America. Priority 1 hibernacula are noted with stars (after Brack 1988)

***Myotis sodalis* (Indiana bat)**

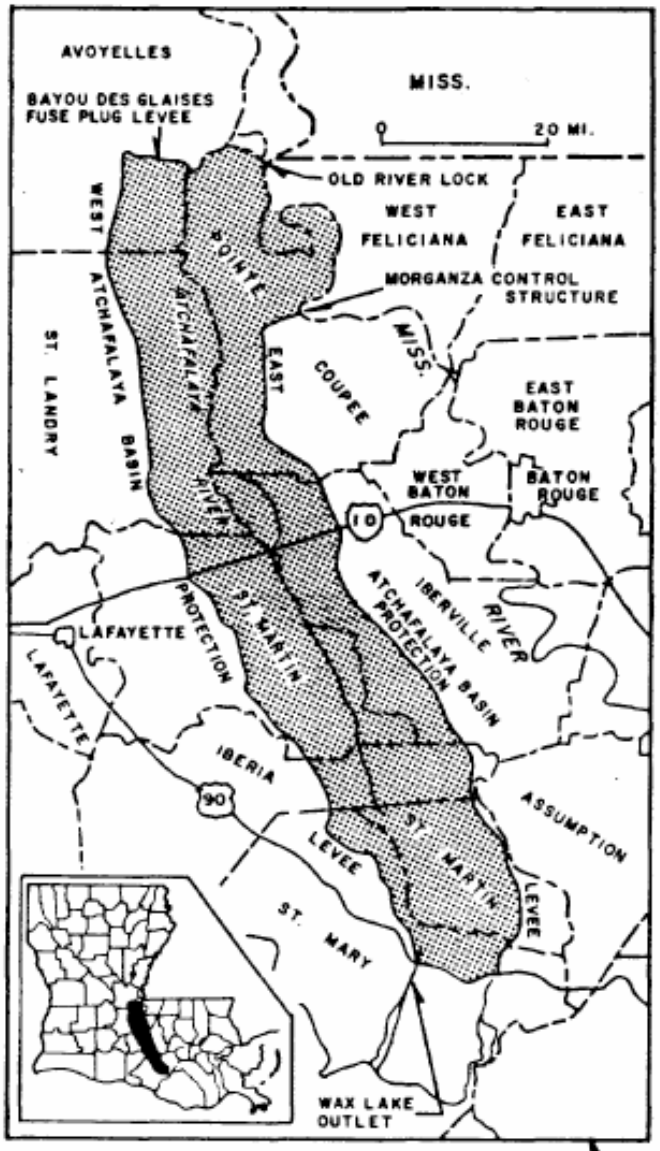


Ursus americanus luteolus **(Louisiana black bear)**

LOUISIANA BLACK BEAR

ATCHAFALAYA BASIN CRITICAL HABITAT AREA

LOUISIANA



THIS IS NEAT LINE FOR F.R. MAP. DO NOT REDUCE.
THIS WAS DESIGNED FOR A 2 COLUMN MAP.

THIS MAP COMPIILED FROM U.S.G.S. STATE MAP (1:500000)

11/92

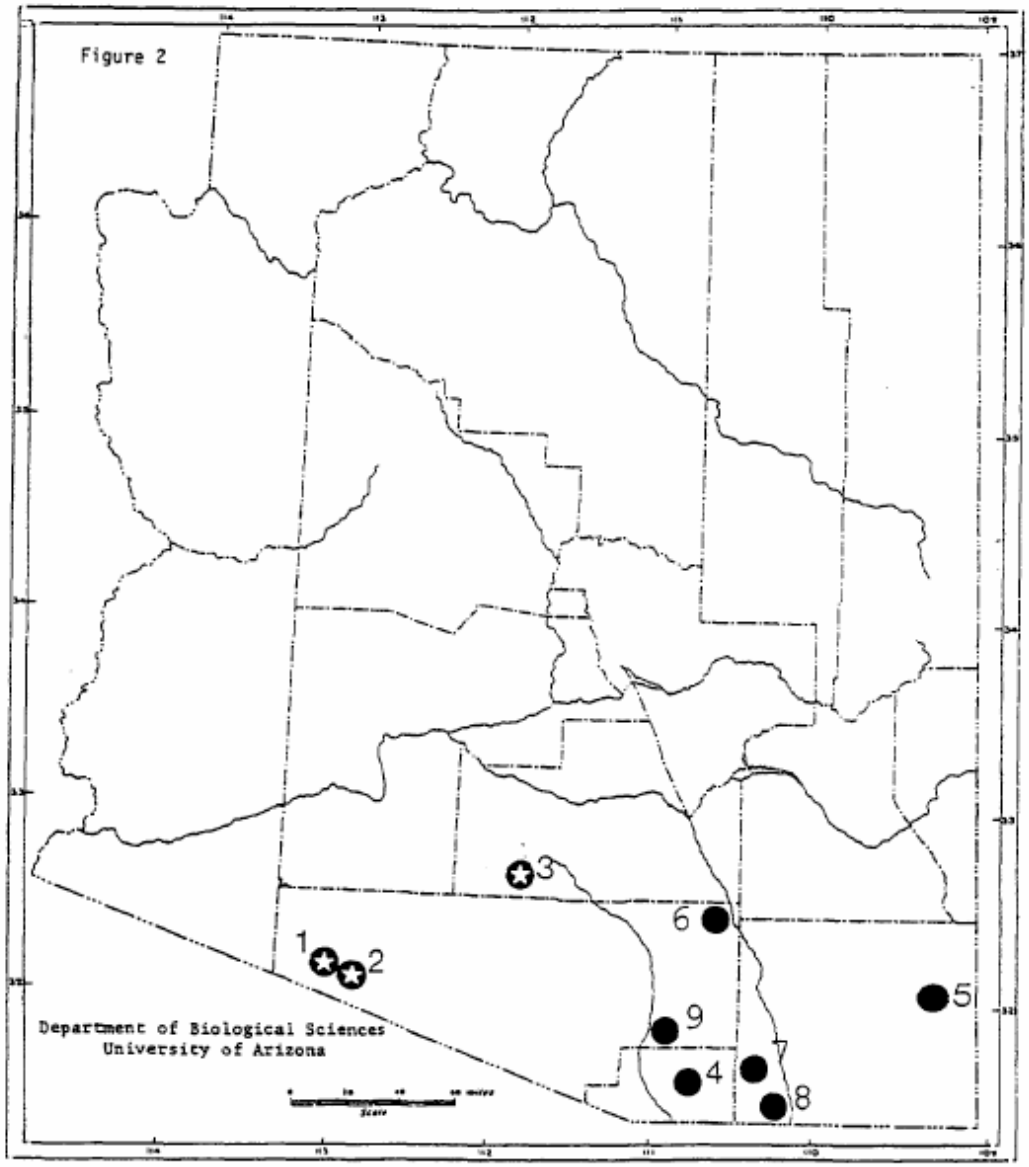
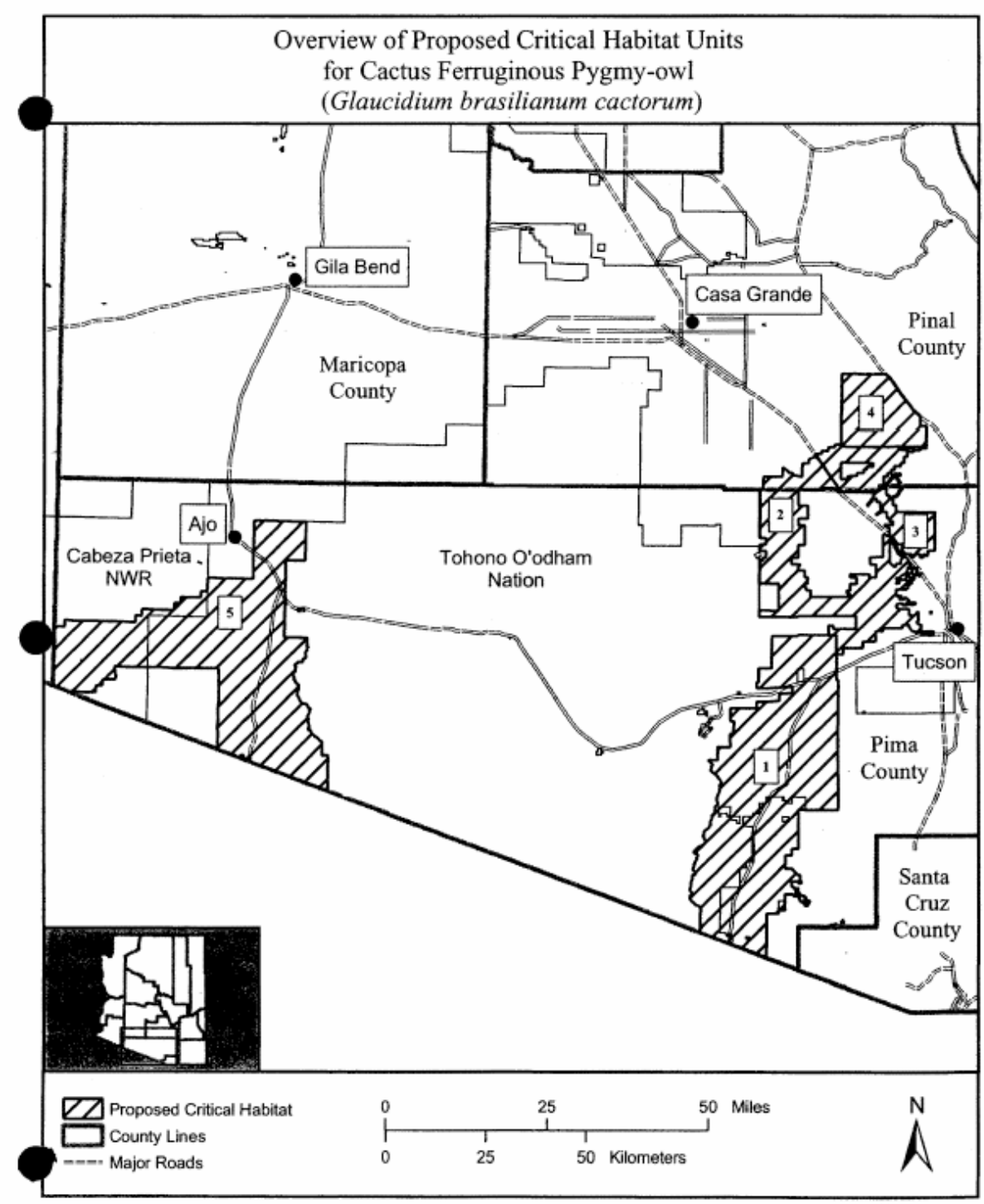
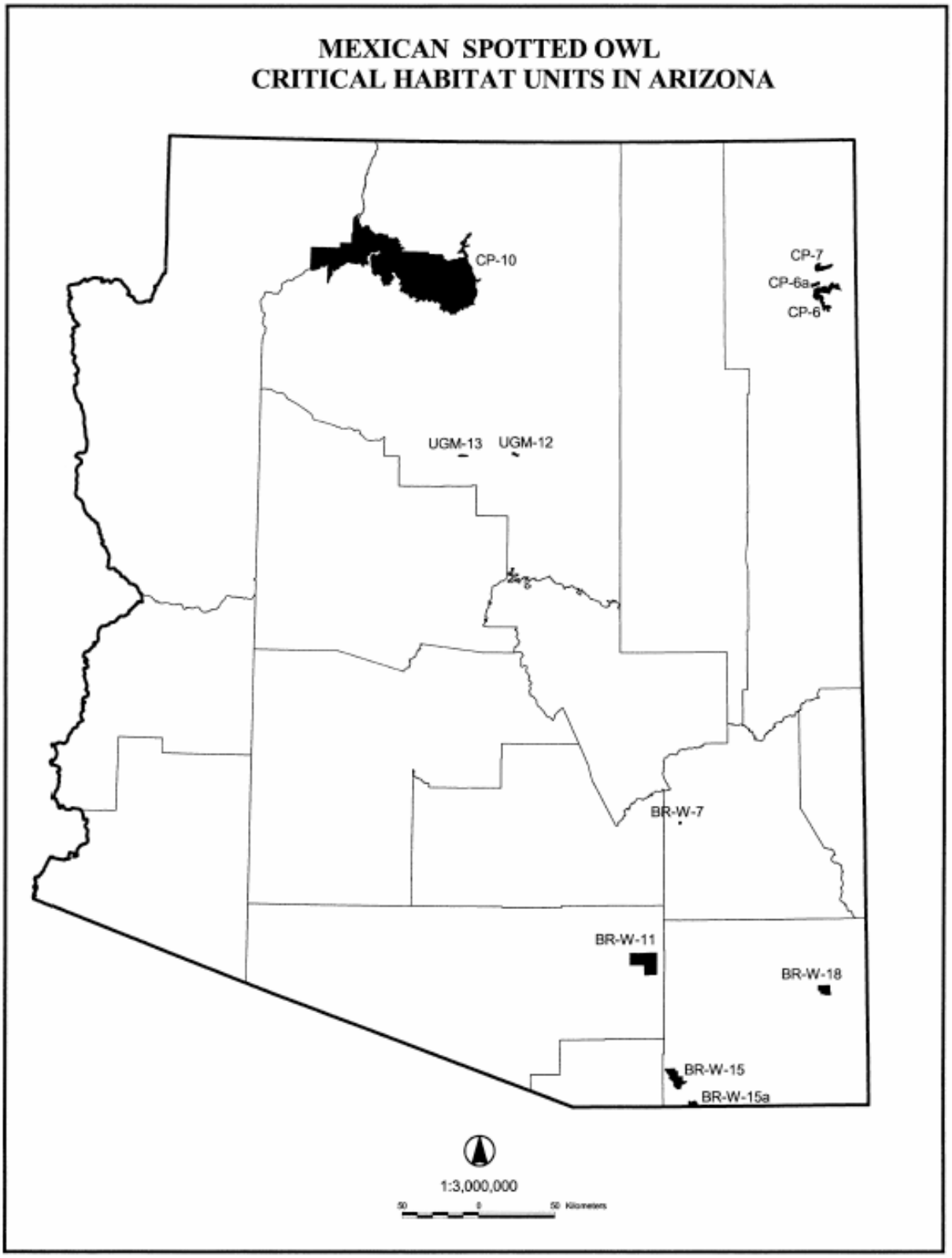


Figure 2. Major roost sites of Leptonycteris curasoae yerbabuenae in Arizona. Sites 1-3 are maternity roosts; sites 4-9 are post-maternity roosts. Roosts are: 1 Bluebird Mine, 2 Copper Mountain Mine, 3 Old Mammon Mine, 4 Patagonia Bat Cave, 5 HilltopMines, 6 Box Canyon Crevice (possibly a maternity roost), 7 Manila Mine, 8 State of Texas Mine, 9 Cave of the Bells.

Leptonycteris curasoae yerbabuenae **(lesser long-nosed bat)**



Glaucidium brasilianum cactorum **(cactus ferruginous pygmy-owl)**



Strix occidentalis lucida **(Mexican spotted owl)**

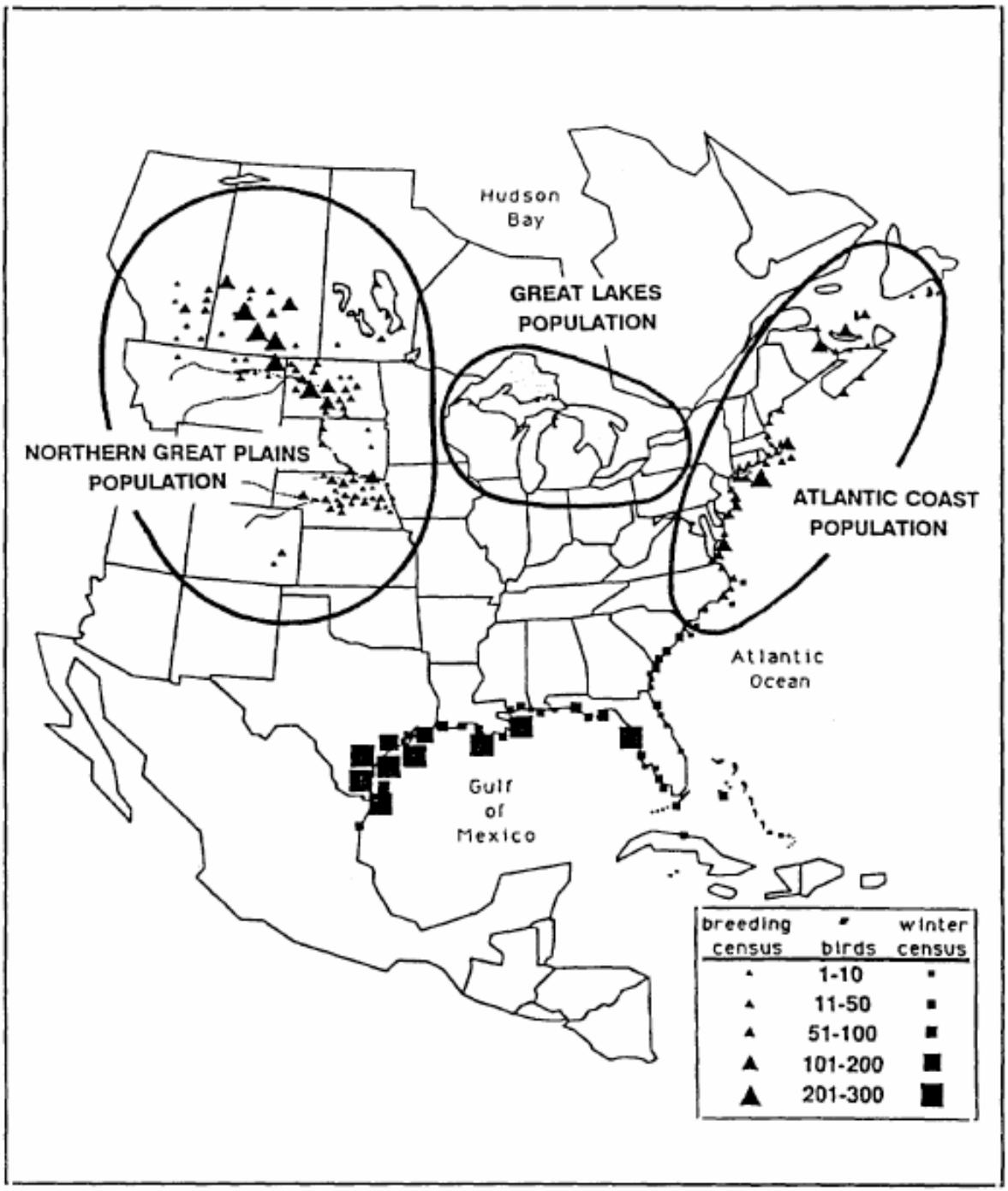
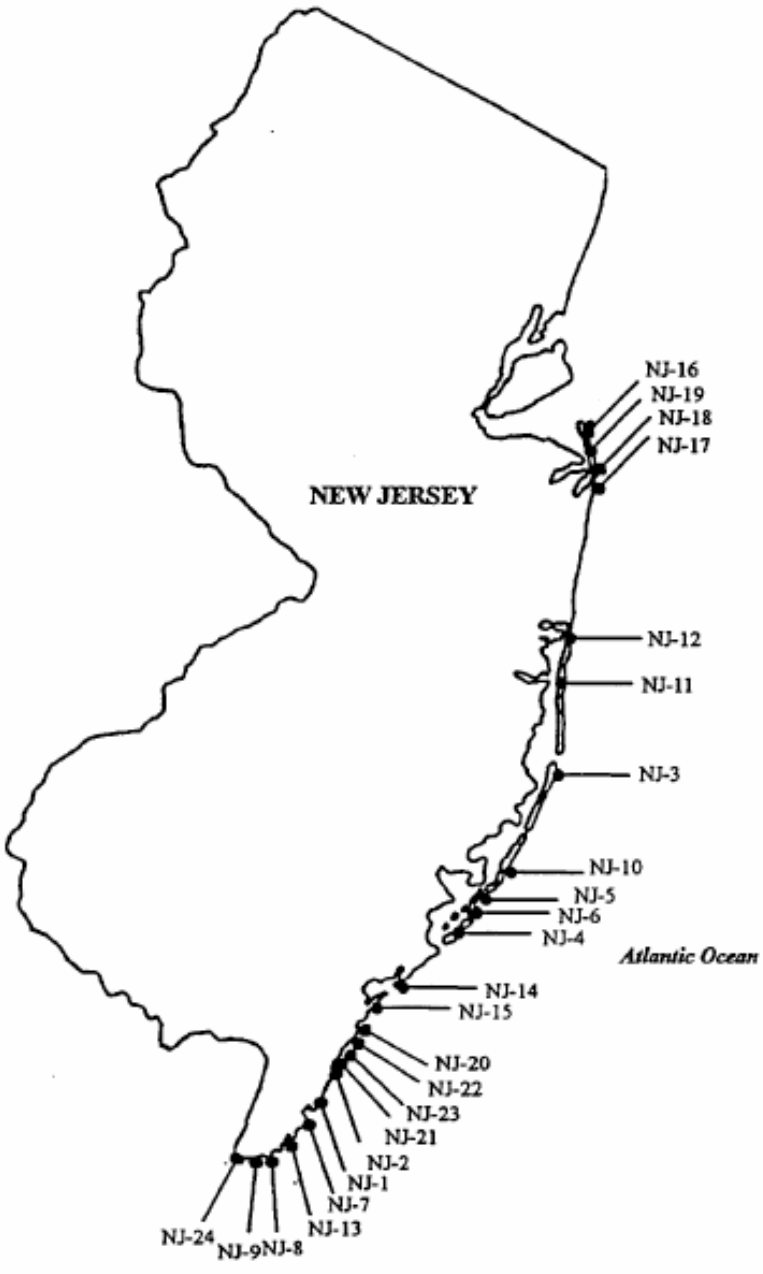


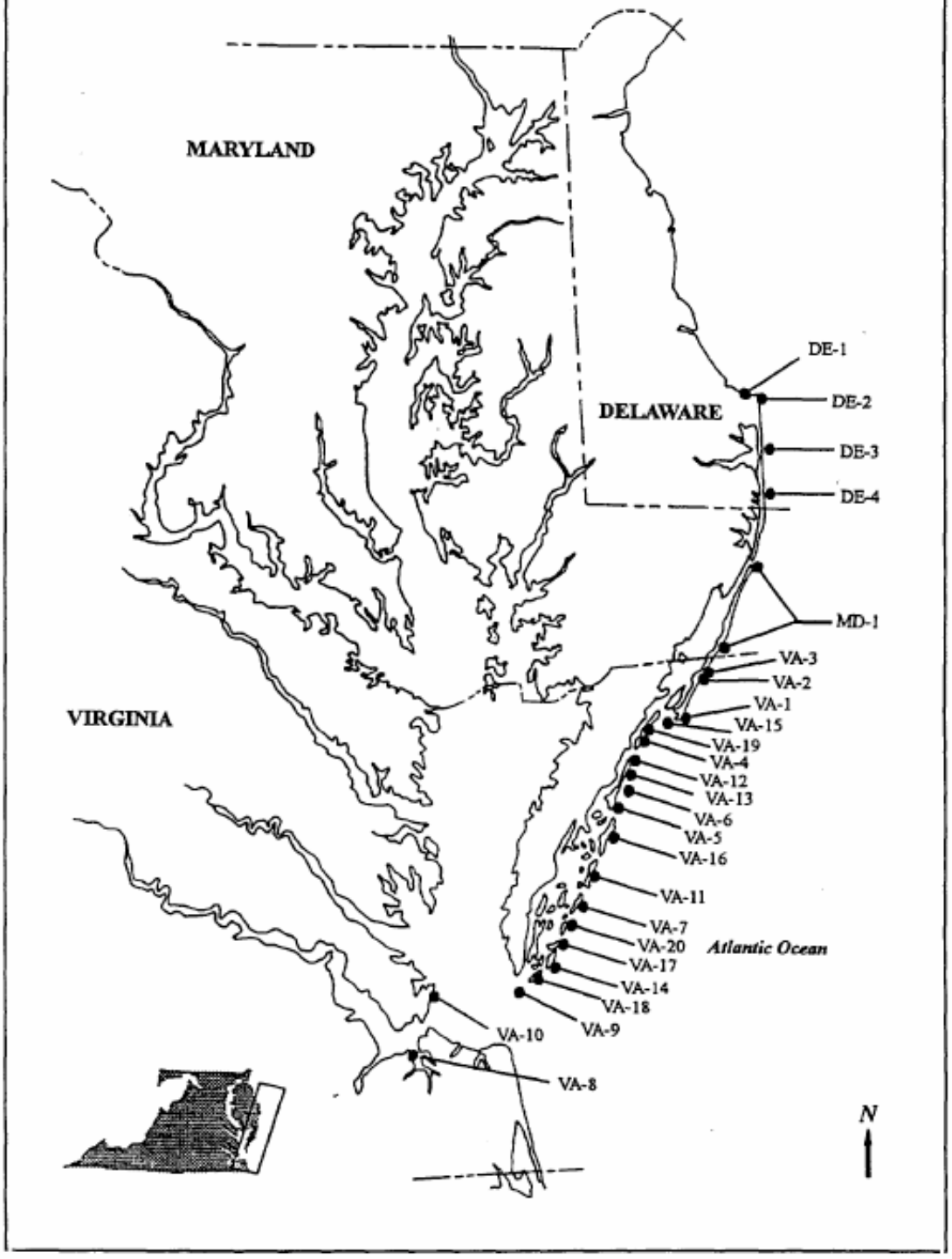
Figure 1. Current Breeding and Wintering Distribution of Piping Plovers in North America (taken from Haig and Plissner 1992)

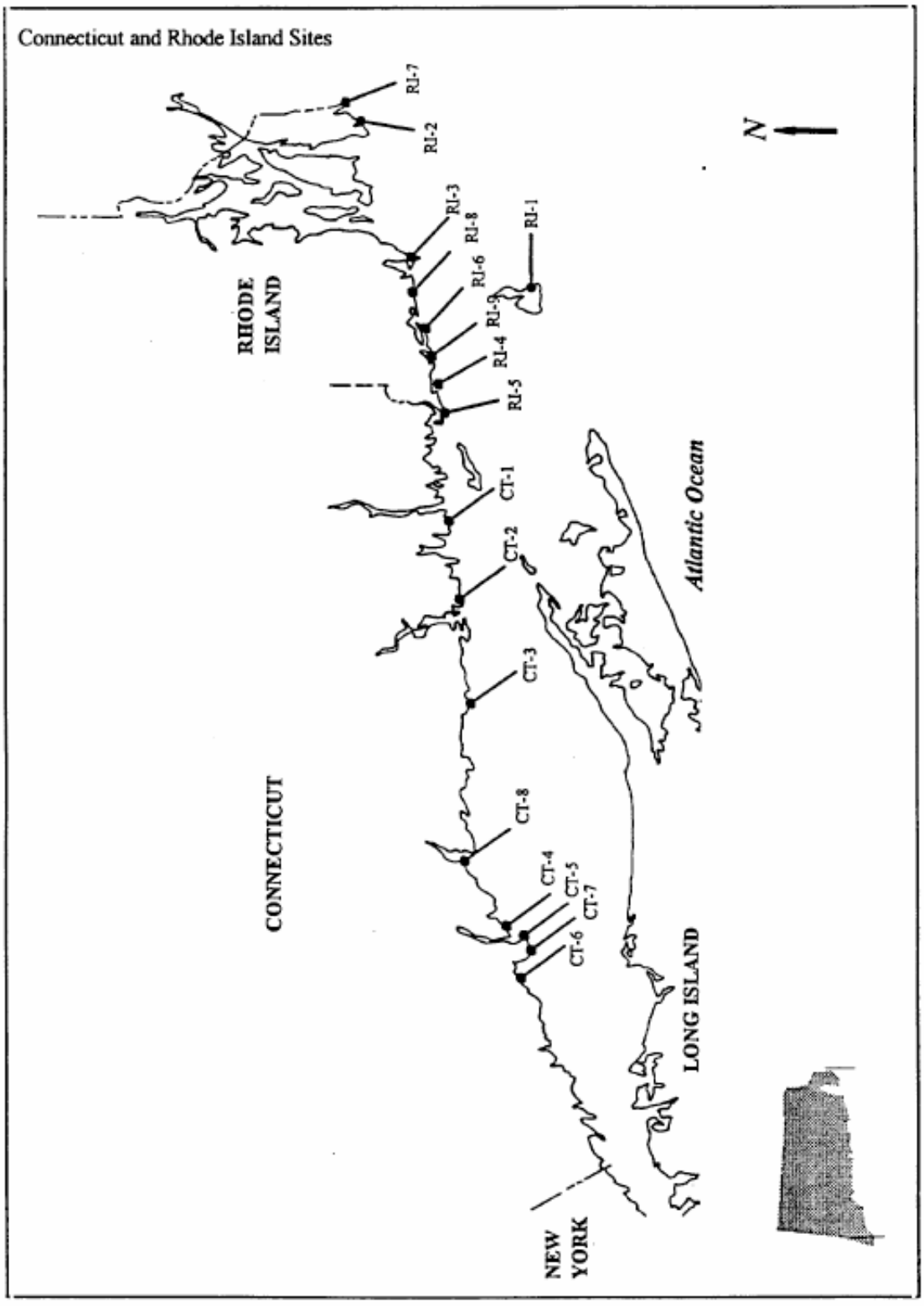
Charadrius melodus **(piping plover)**

New Jersey Sites

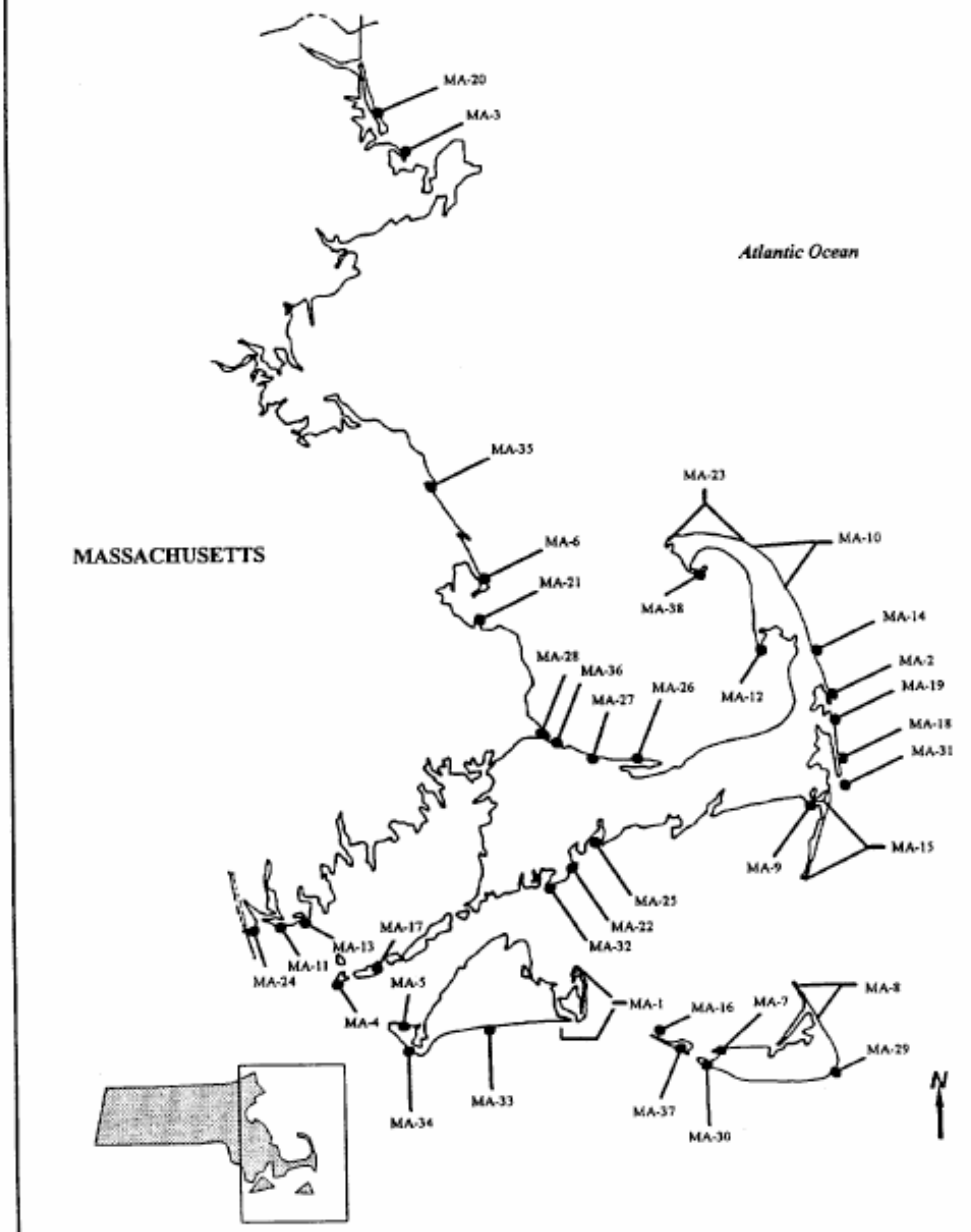


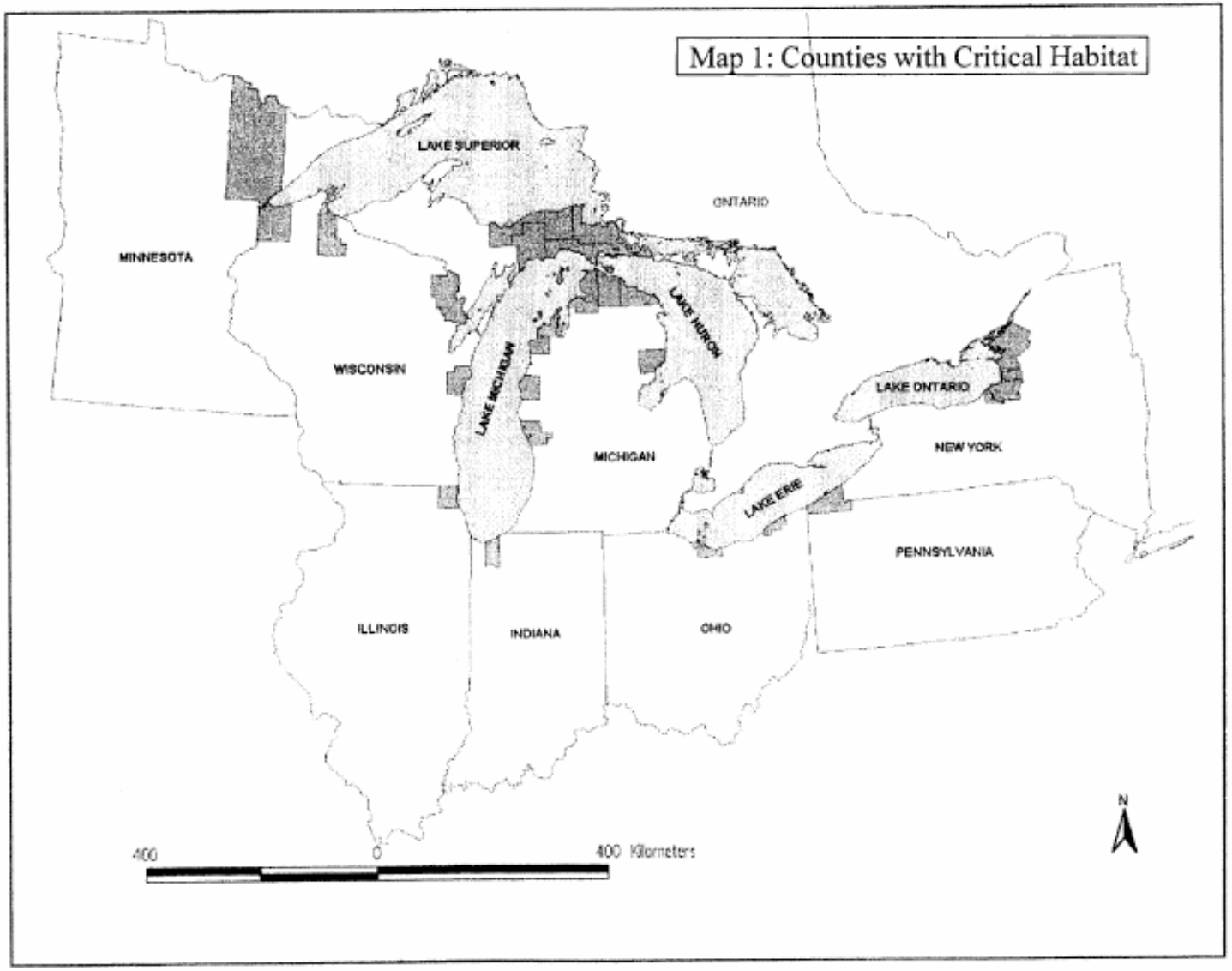
Delaware, Maryland, and Virginia Sites



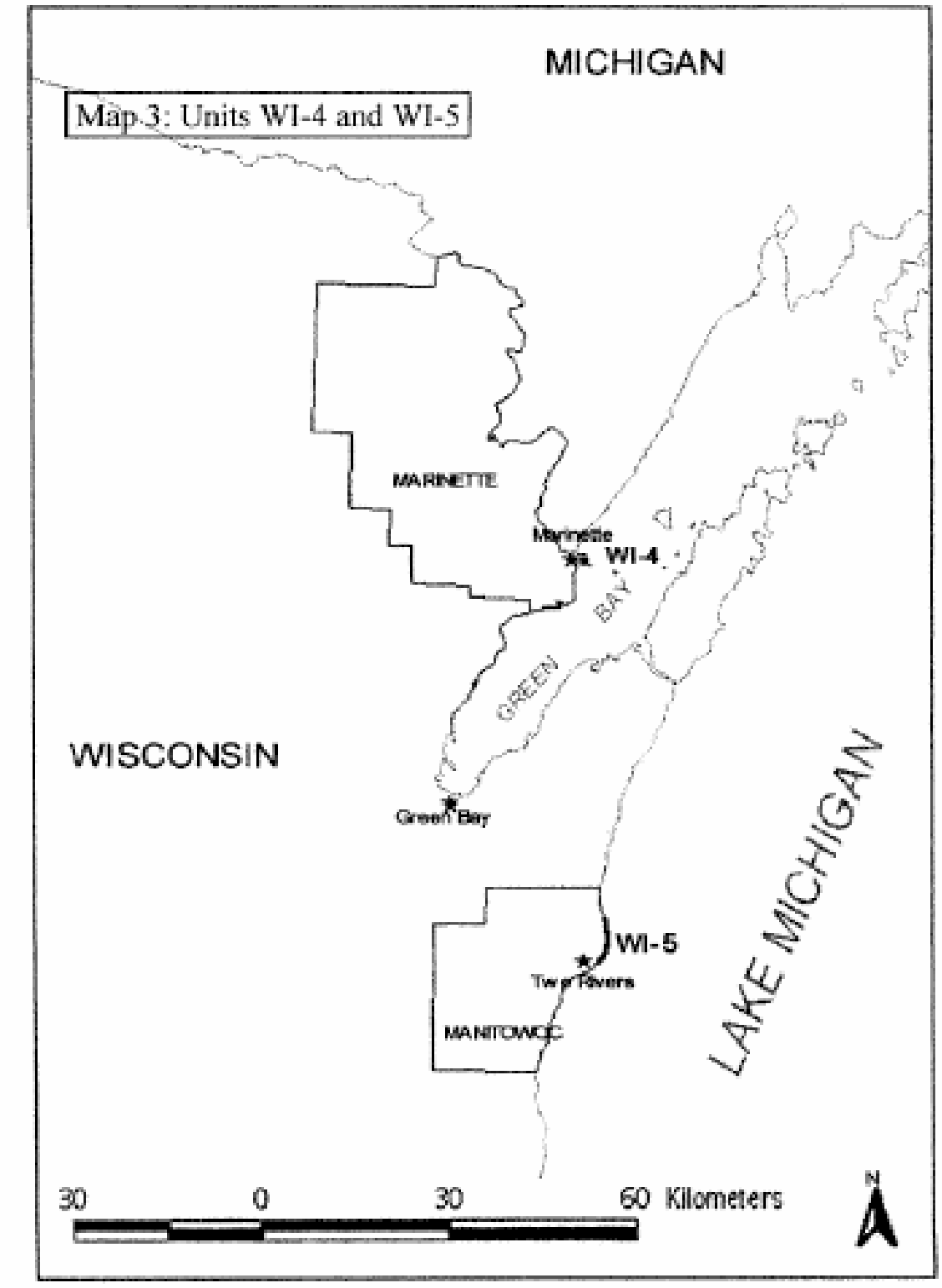

Connecticut and Rhode Island Sites
RI-7
RI-2
RI-3
RI-8
RI-6
RI-9
RI-4
RI-5
RI-1
RHODE ISLAND
CT-1
CT-2
CT-3
CT-8
CT-4
CT-5
CT-7
CT-6
CONNECTICUT
Atlantic Ocean
LONG ISLAND
NEW YORK
N

Massachusetts Sites

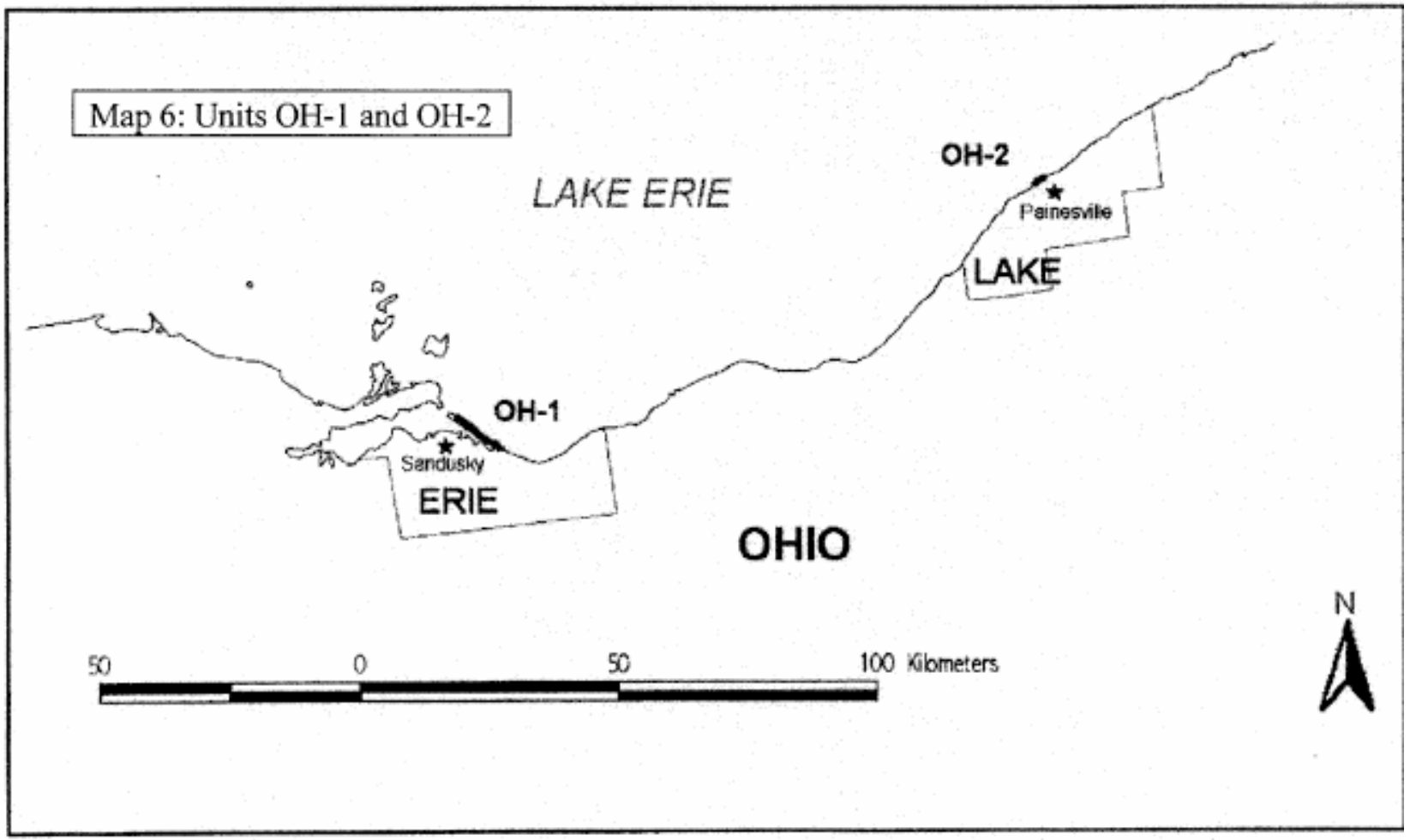




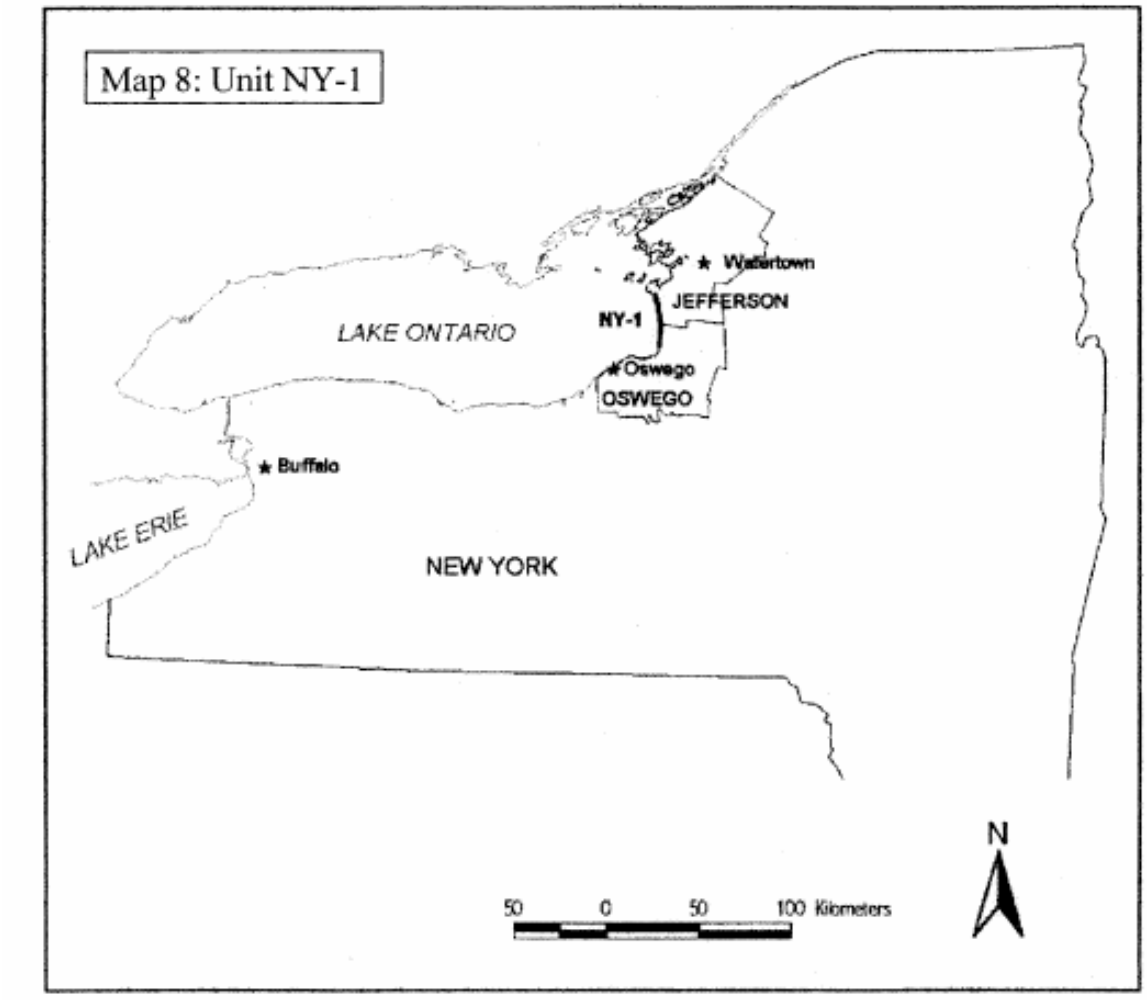
Great Lakes Piping plover critical habitat.



Piping plover critical habitat in Wisconsin.



Piping Plover critical habitat in Ohio.



Piping plover critical habitat in New York.

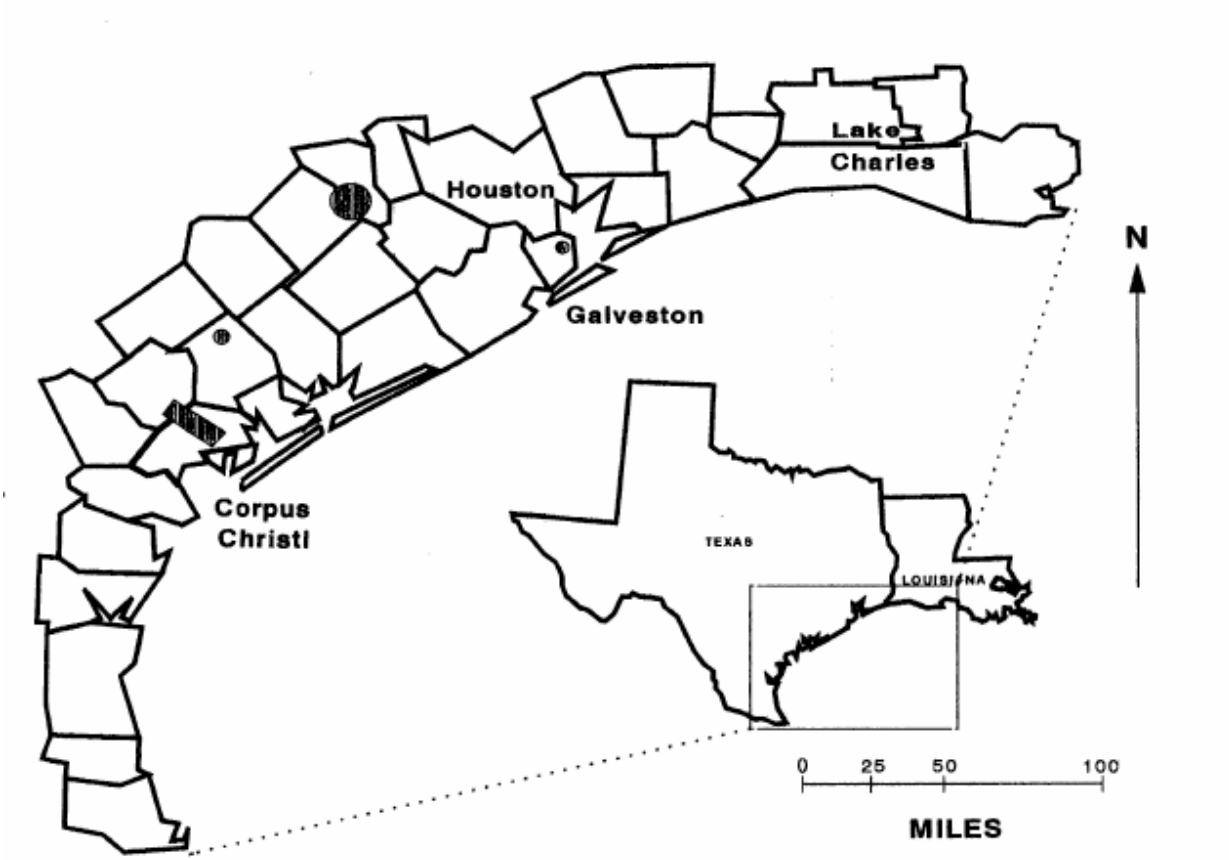


Figure 1. Boundaries of counties historically occupied by Attwater's prairie chicken and present range (shaded).

Tympanuchus cupido attwateri **(Attwater's prairie chicken)**

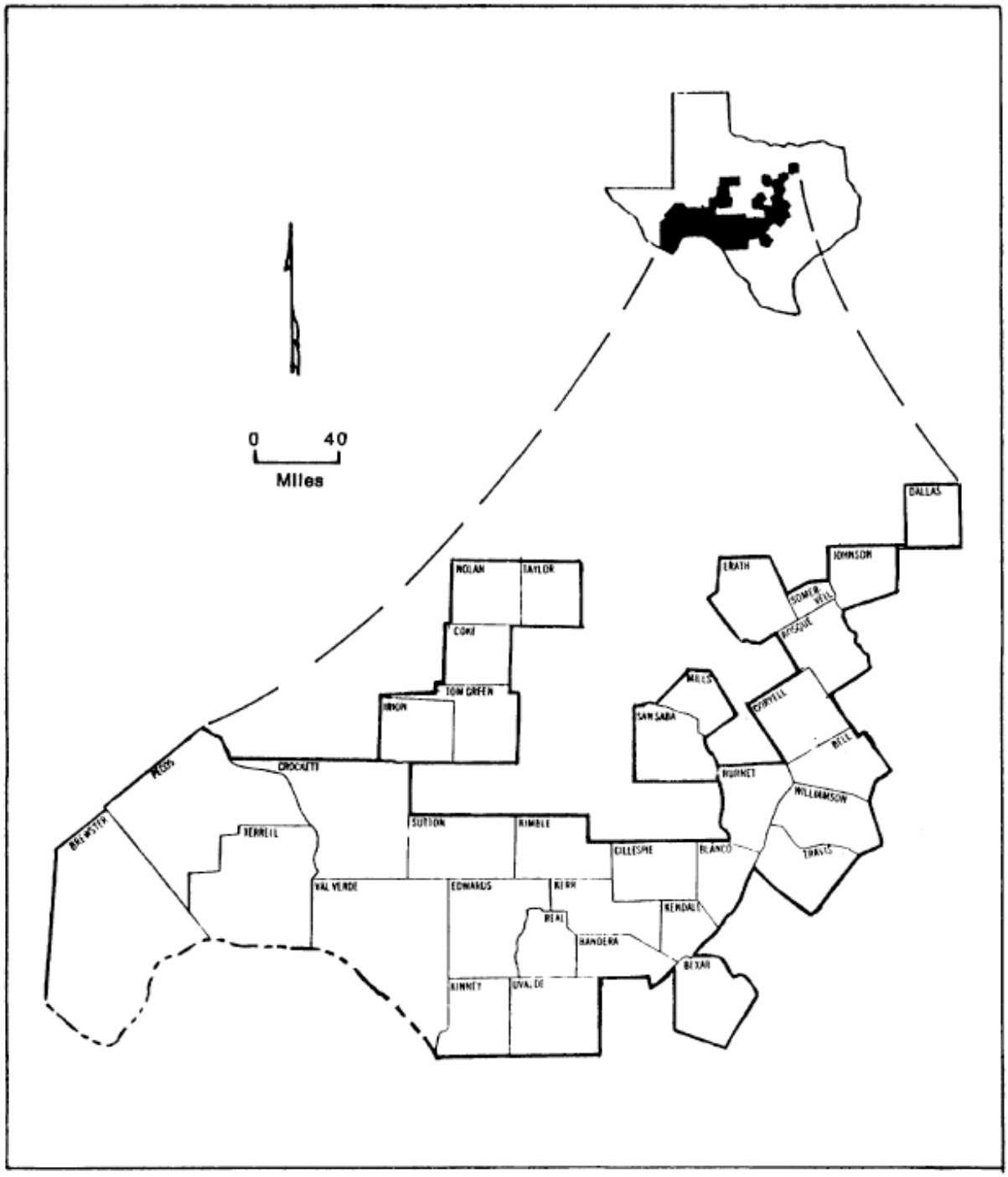
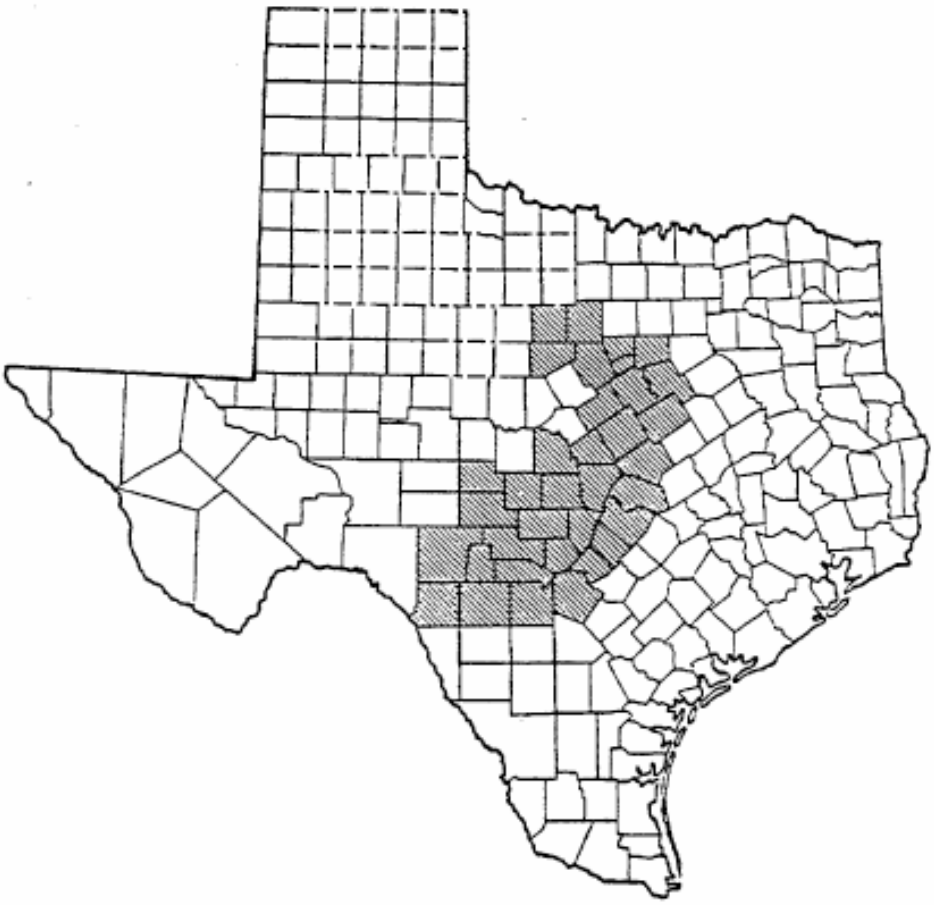


Figure 4. Texas counties known to be occupied by breeding black-capped vireo (Sexton et al. unpubl. MS) in 1990.

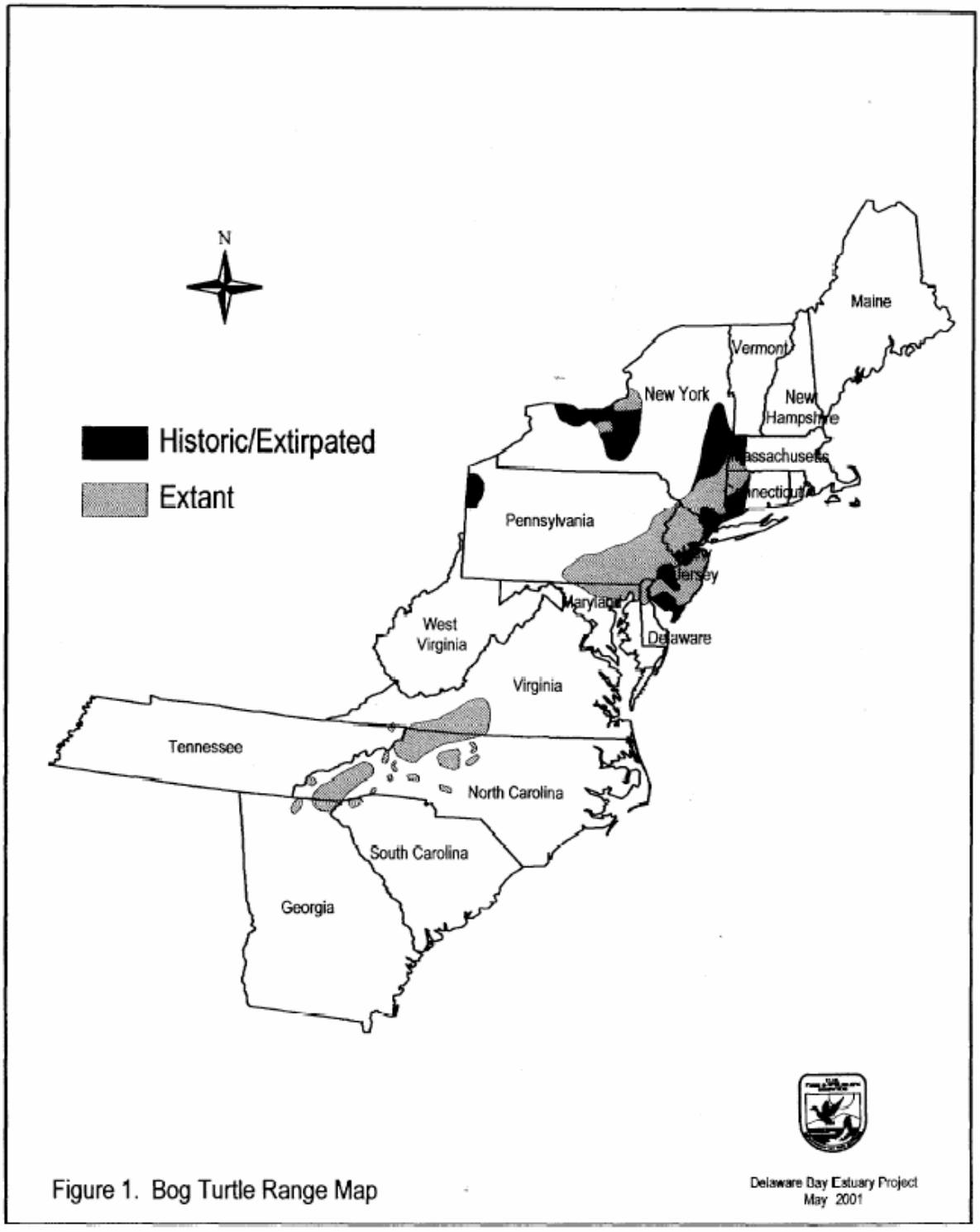
Vireo atricapillus **(black-capped vireo)**

Figure 1. Breeding range of the golden-cheeked warbler (from Pulich 1976).*



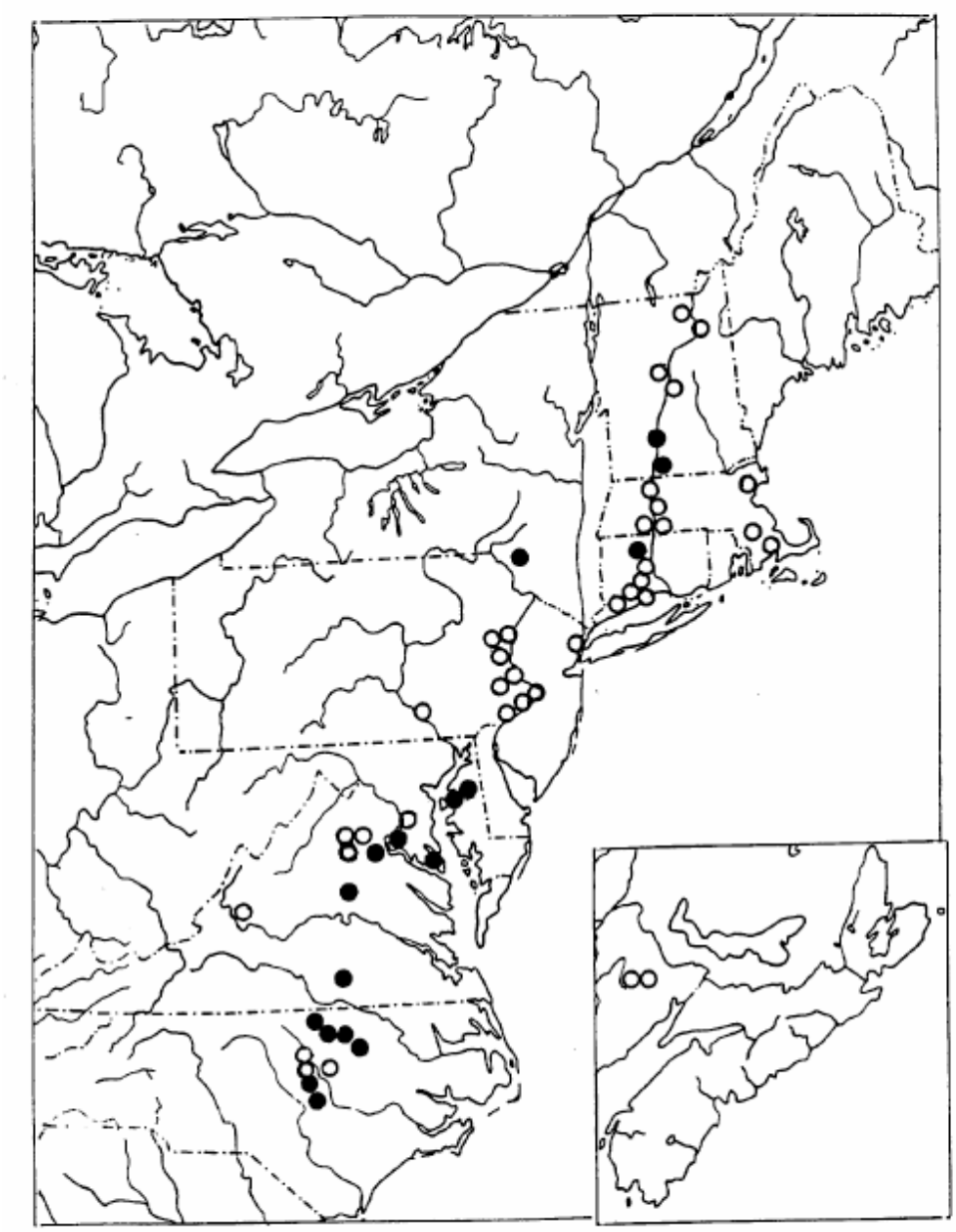
* Cross-hatched counties indicate the current breeding range of the golden-cheeked warbler.

Dendroica chrysoparia **(golden-cheeked warbler)**



Clemmys muhlenbergii **(bog turtle)**

APPENDIX B.3 Distribution of Selected Invertebrate Animal Species

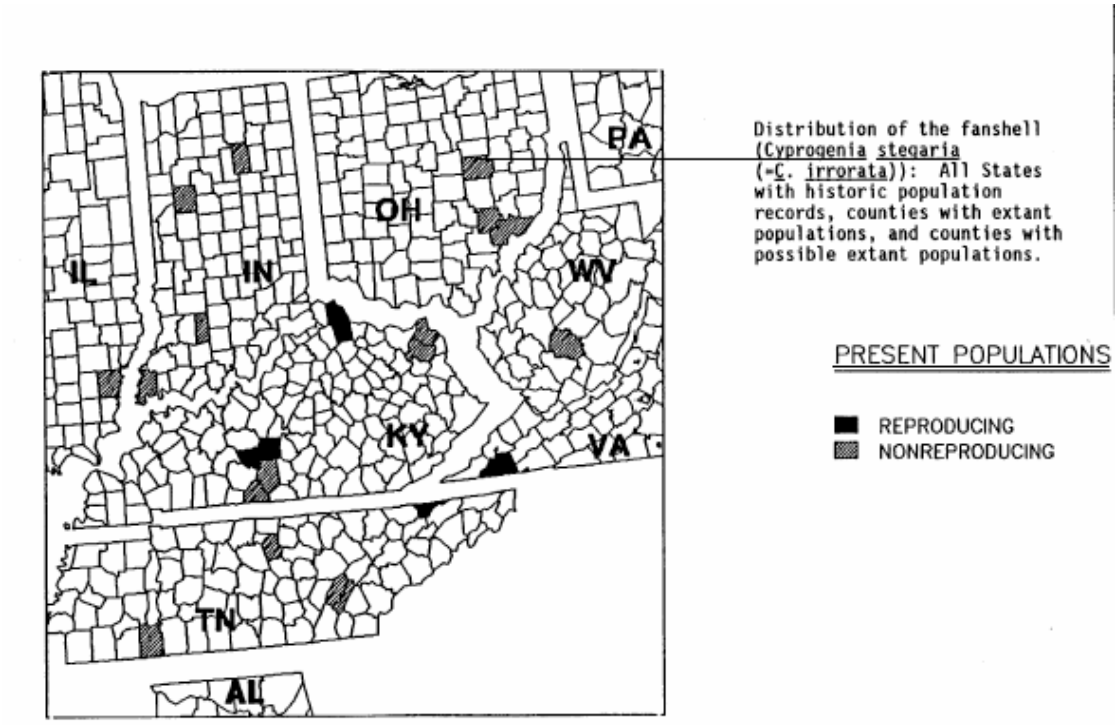


● = Present occurrence
○ = Historical occurrence, presumed extirpated

Figure 4. Distribution of *Alasmidonta heterodon*

(insert shows locations in New Brunswick)

Alasmidonta heterodon **(dwarf wedge mussel)**



Cyprogenia stegaria **(fanshell)**

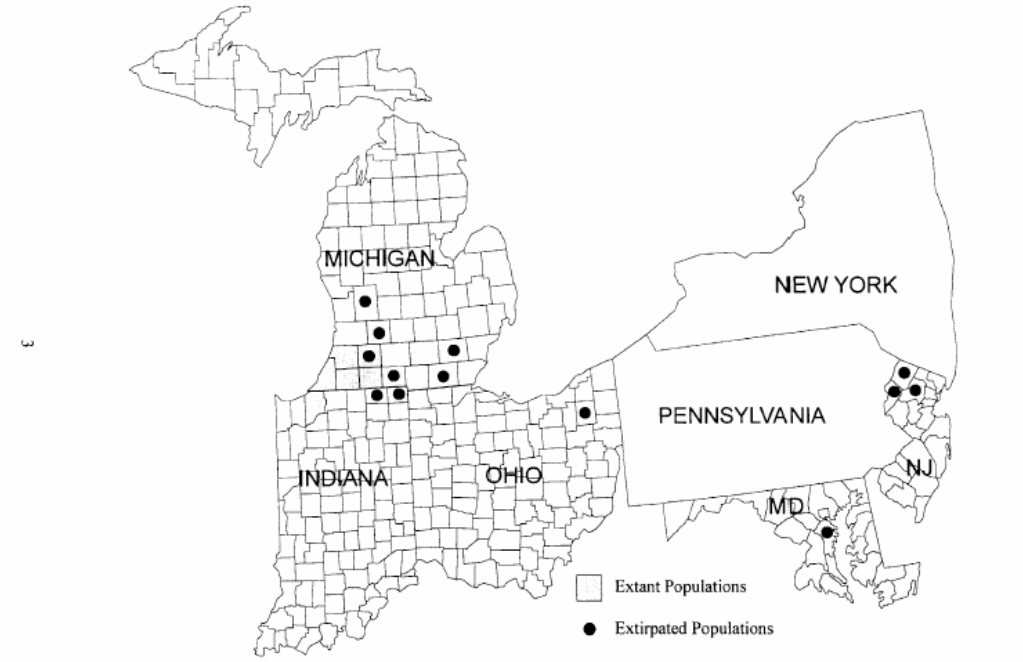
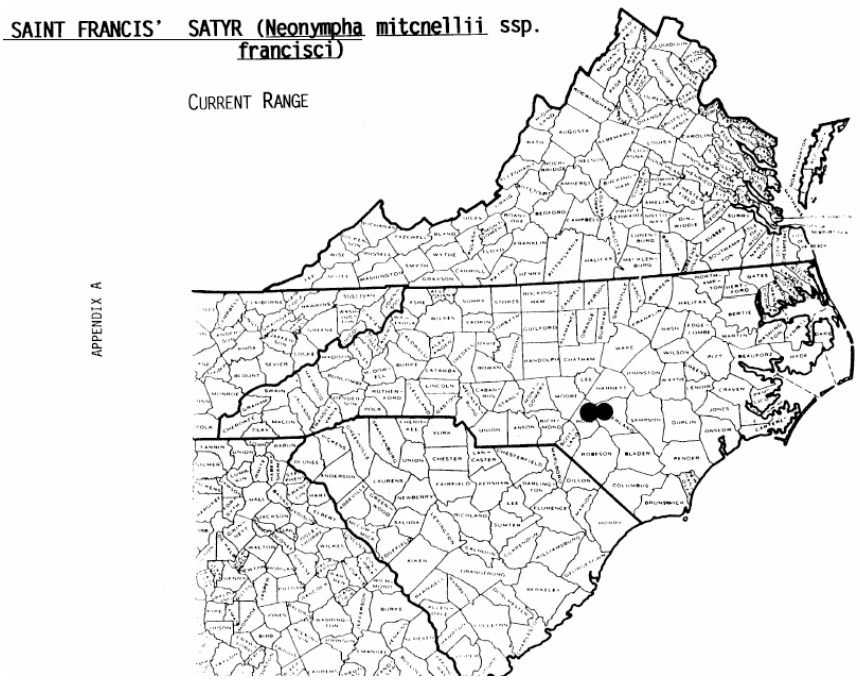


Figure 1. The current and historical range of *Neonympha mitchellii mitchellii* French (Modified from Wilsmann and Schwietzer, 1991)

Neonympha mitchellii mitchellii **(Mitchell's satyr butterfly)**



***Neonympha mitchellii francisci* (Saint Francis' satyr butterfly)**

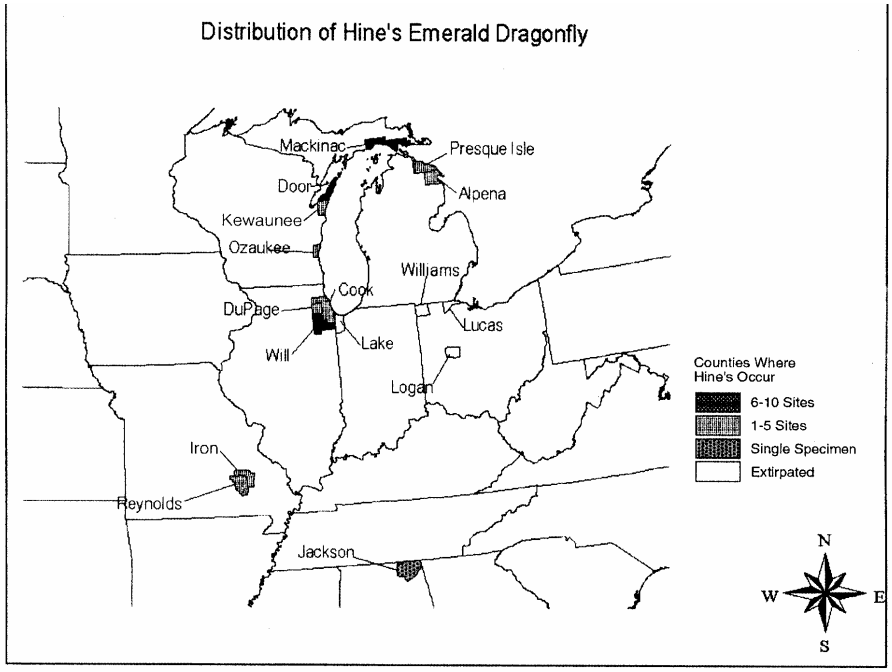
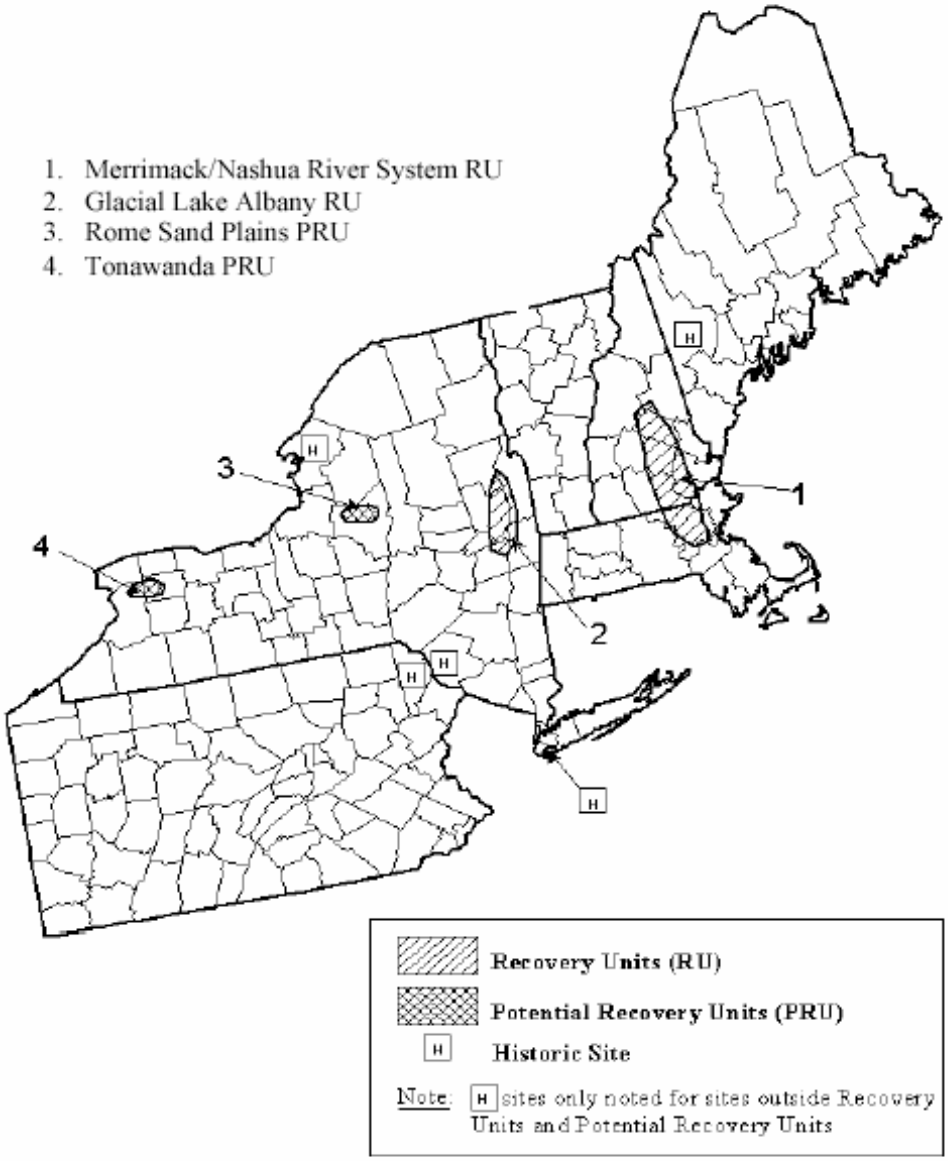


Figure 3. Present number of Hine's emerald dragonfly sites per county in the Great Lakes Region. All historic occurrences and single specimens collected are included in this map.

***Somatochlora hineana* (Hine's emerald dragonfly)**

Figure B-2 Karner blue butterfly recovery units in Massachusetts, New Hampshire and New York.



Lycaeides melissa samuelis **(Karner blue butterfly)**

Figure B-3 Karner blue butterfly recovery units in Indiana, Michigan and Ohio.

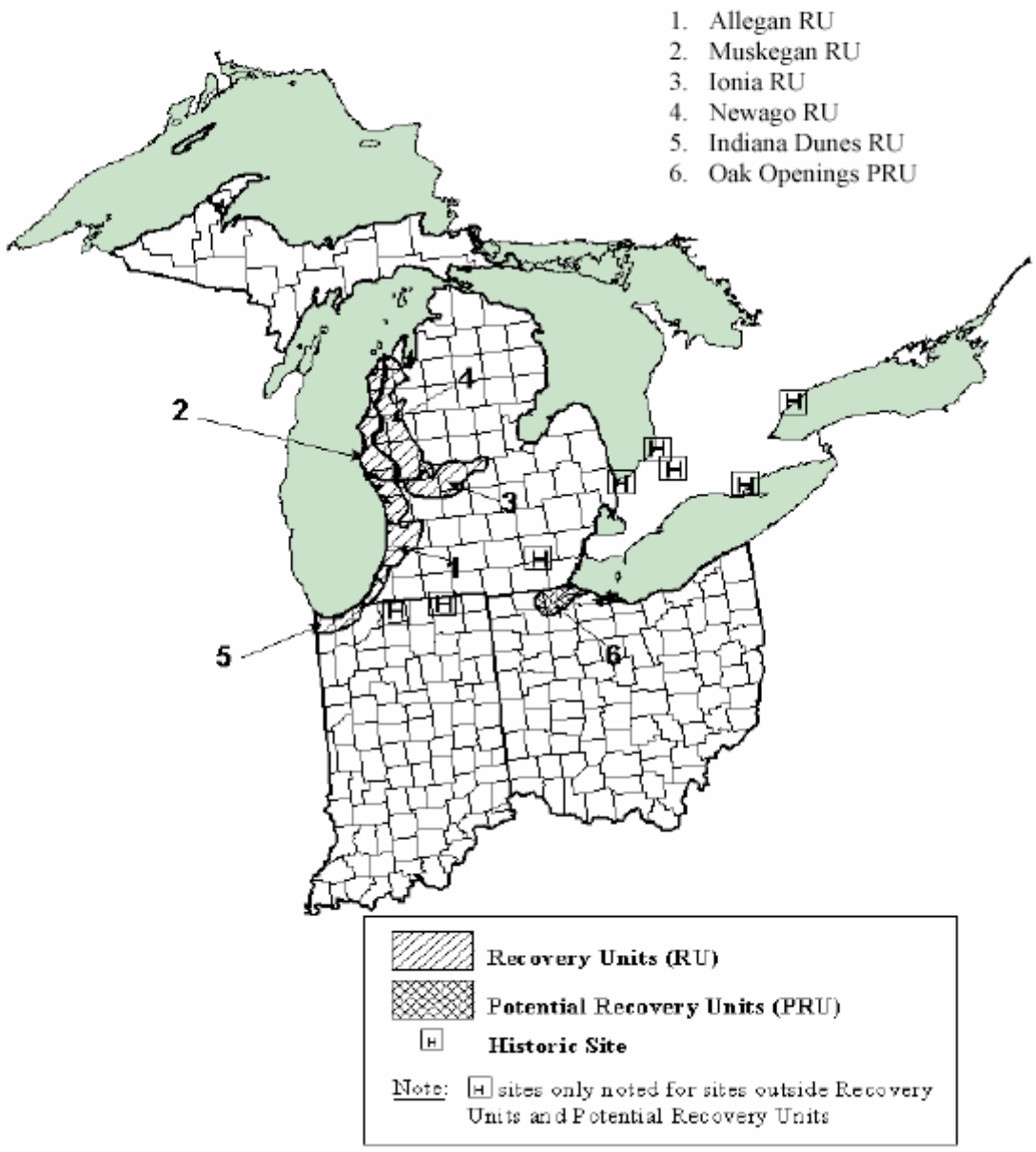
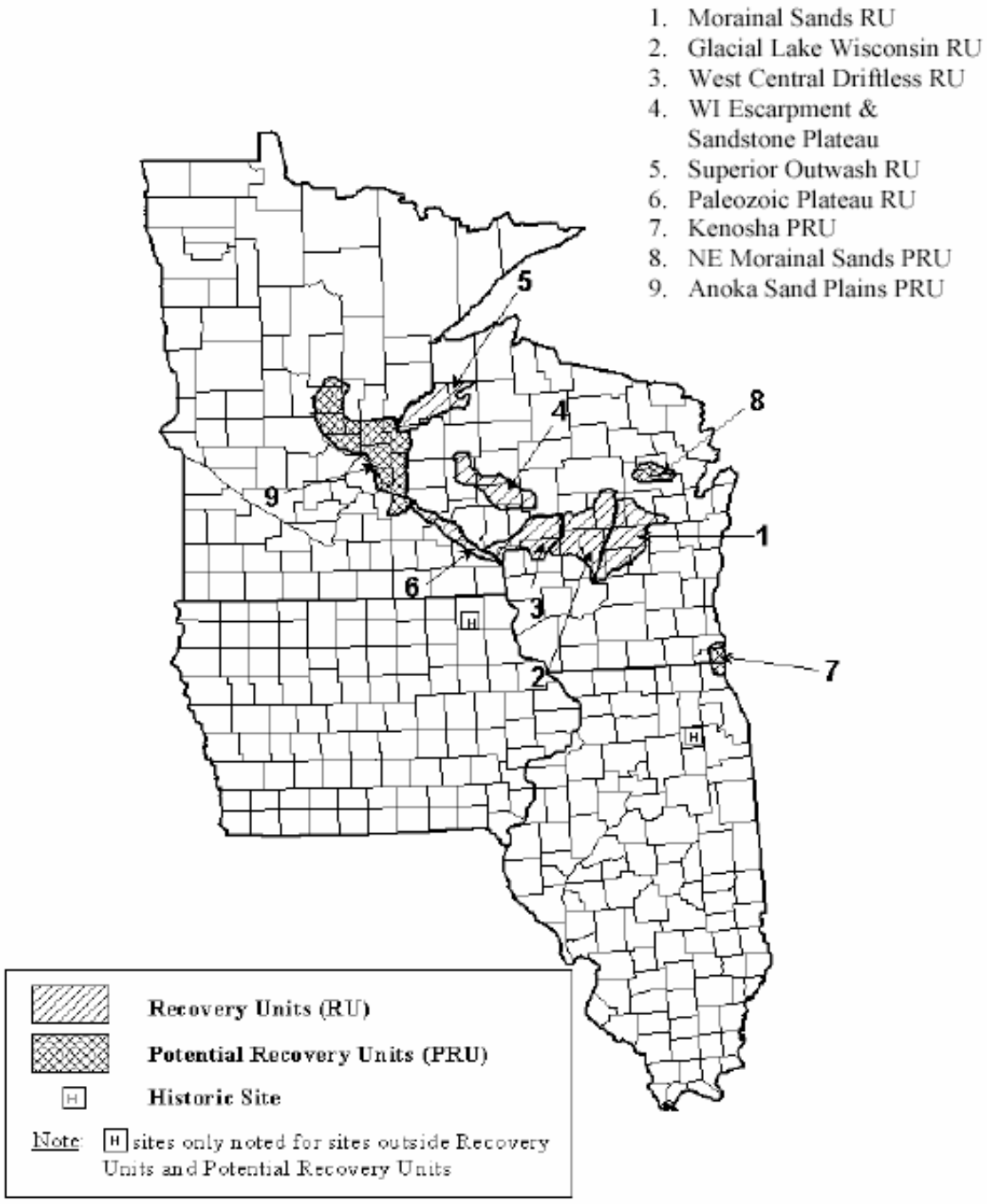
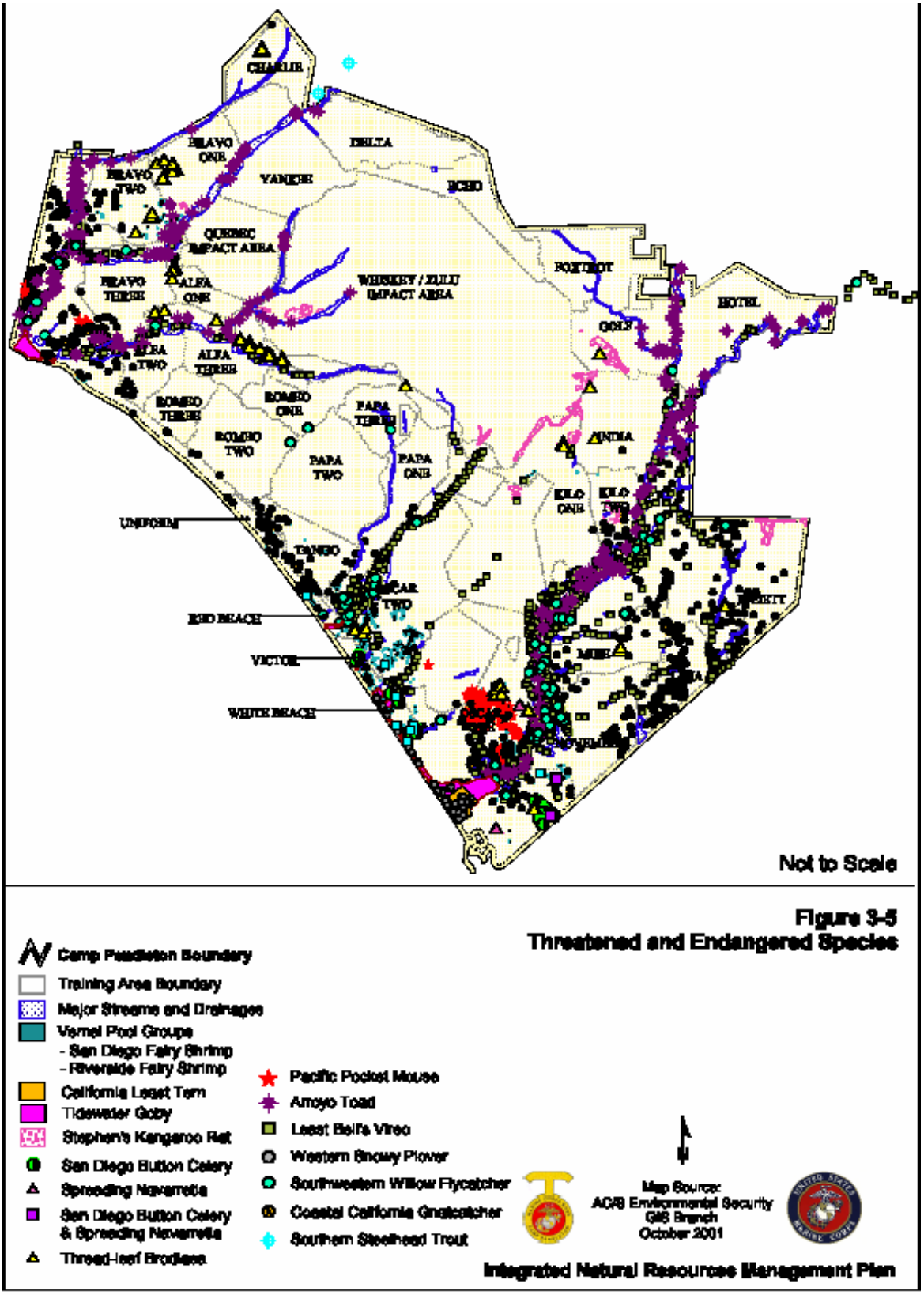


Figure B-4 Karner blue butterfly recovery units in Illinois, Minnesota and Wisconsin.



APPENDIX B.4 Distribution of Selected Species in the Vicinity of San Onofre



Various species located on Camp Pendleton Marine Corps Base.

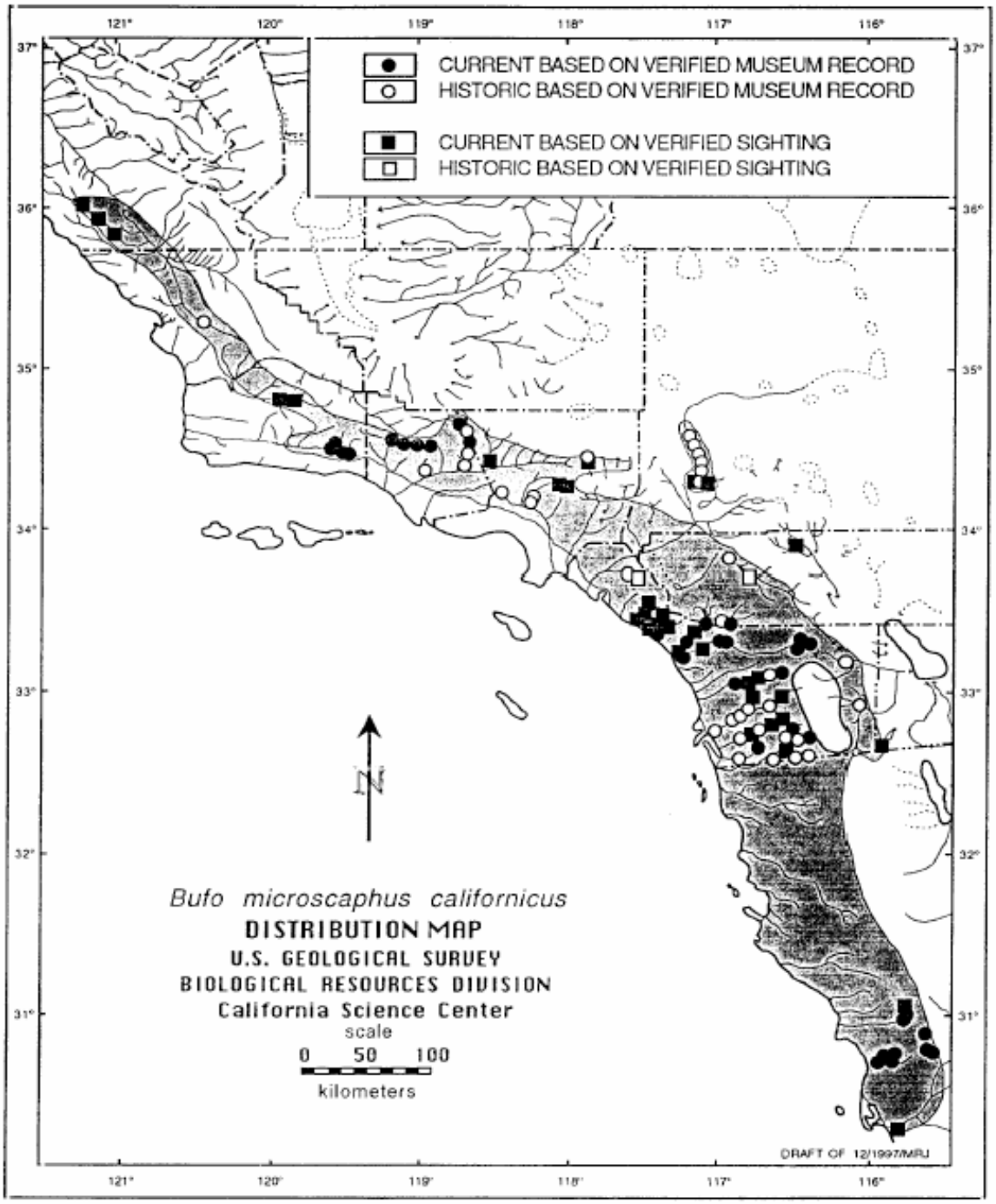


Figure 1. Historic and current distribution of the arroyo toad in southern California and northern Baja California based on 173 locations from 1,196 museum records and 37 records from other sources (modified from Sweet 1992 and Jennings and Hayes 1994).

Bufo microscaphus californicus **(arroyo toad)**

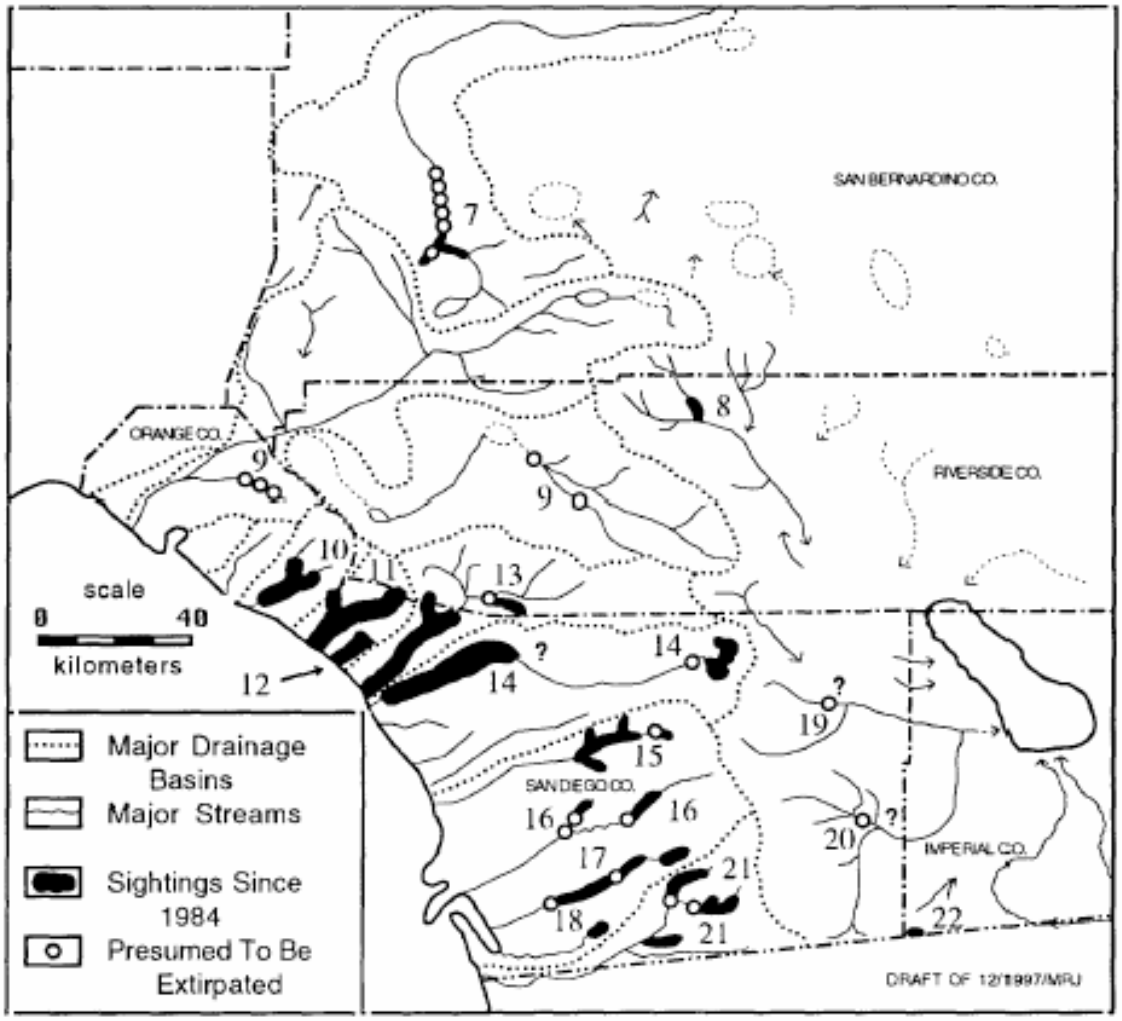
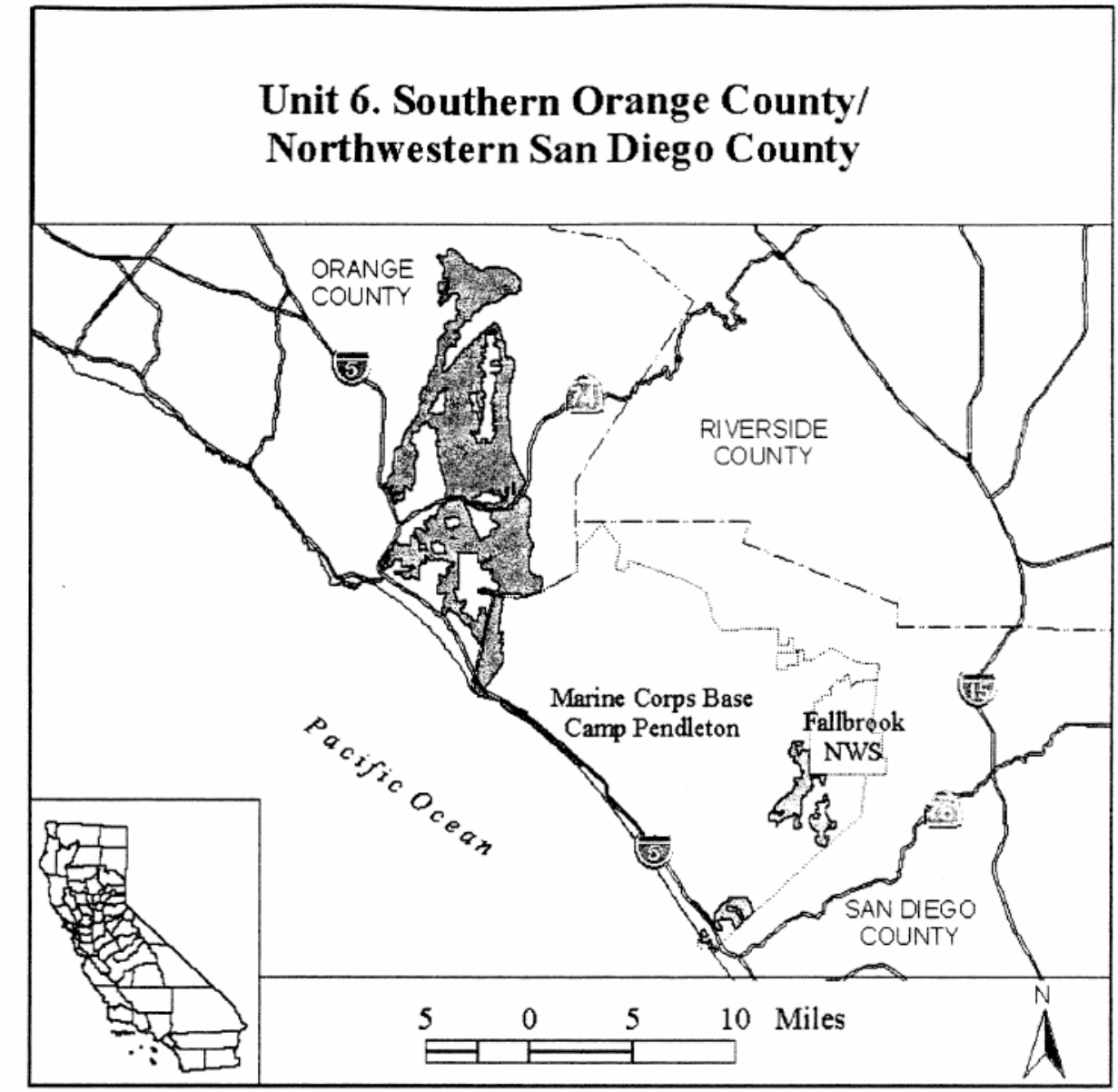
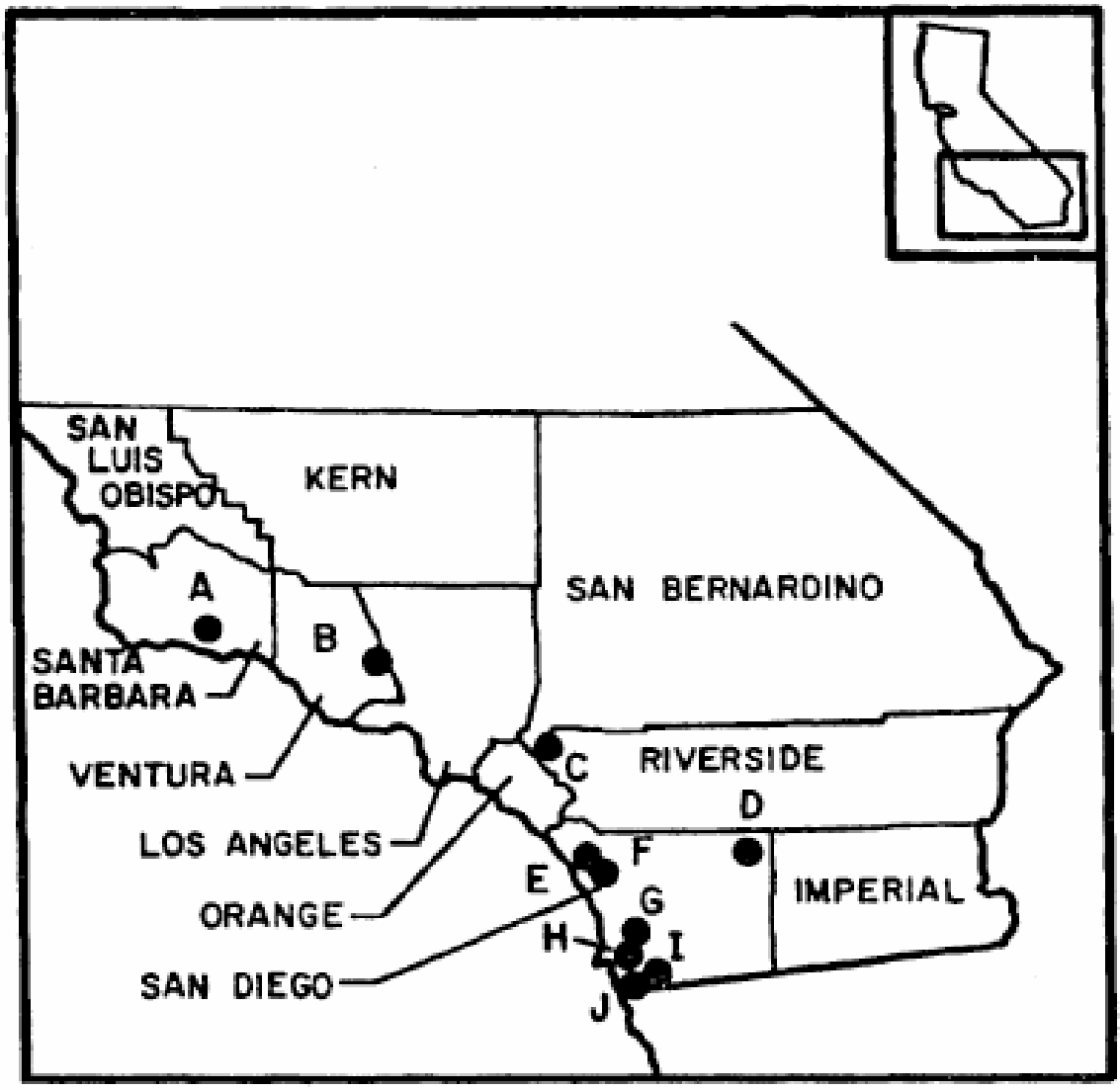


Figure 8. Historic and current distribution of the arroyo toad in Orange, Riverside, San Bernardino, San Diego, and Imperial Counties (modified from Campbell *et al.* 1996). Numbers correspond to basins mentioned in the text.



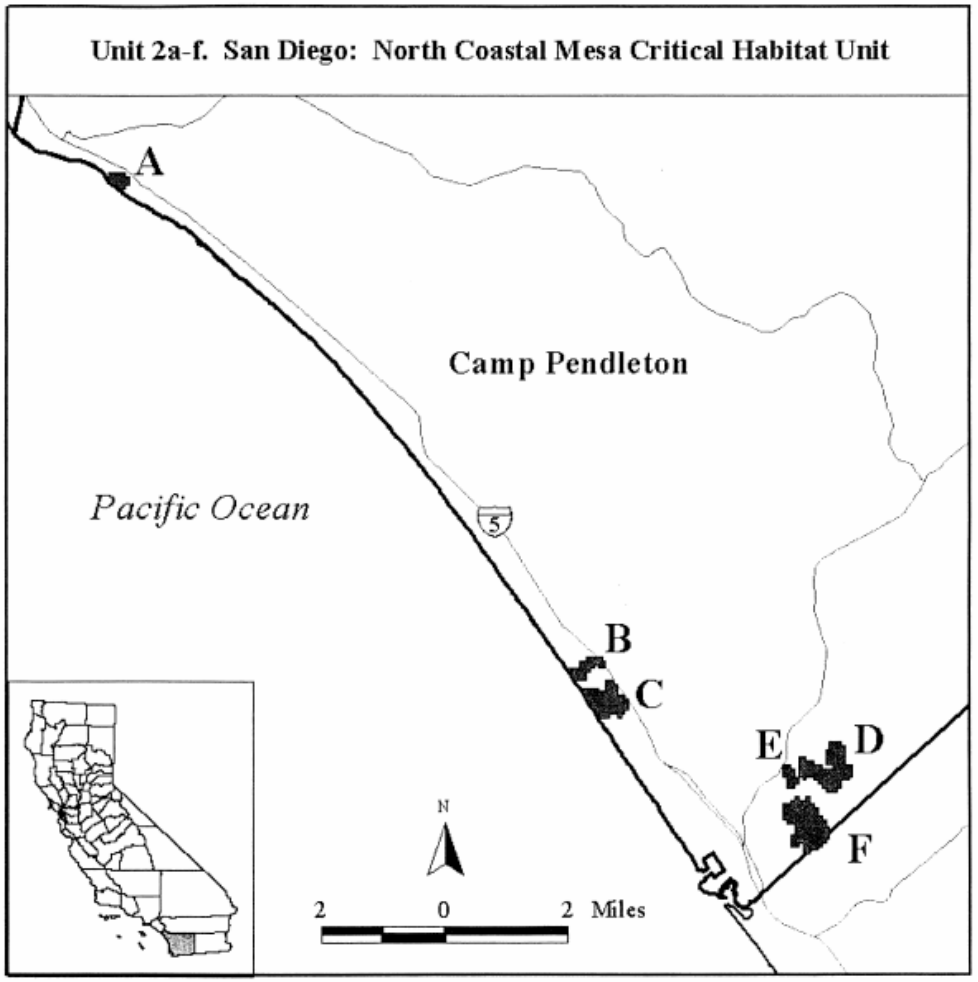
Proposed critical habitat for the Coastal California Gnatcatcher.

Polioptila californica californica **(coastal California gnatcatcher)**



Distribution of designated critical habitat for the least Bell's vireo.

Vireo bellii pusillus **(least Bell's vireo)**



Proposed Critical Habitat for the San Diego fairy shrimp.

***Branchinecta sandiegoensis* (San Diego fairy shrimp)**

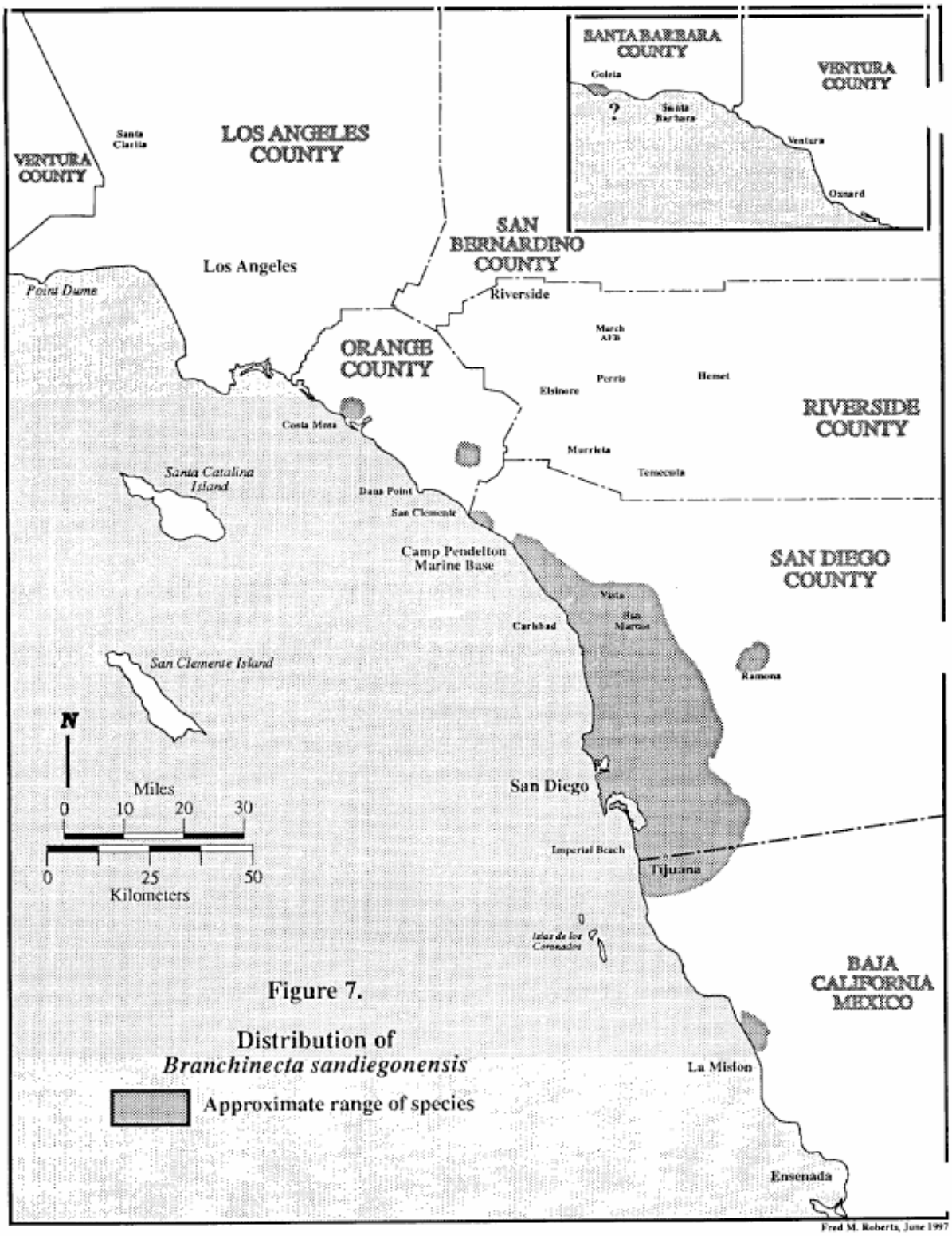
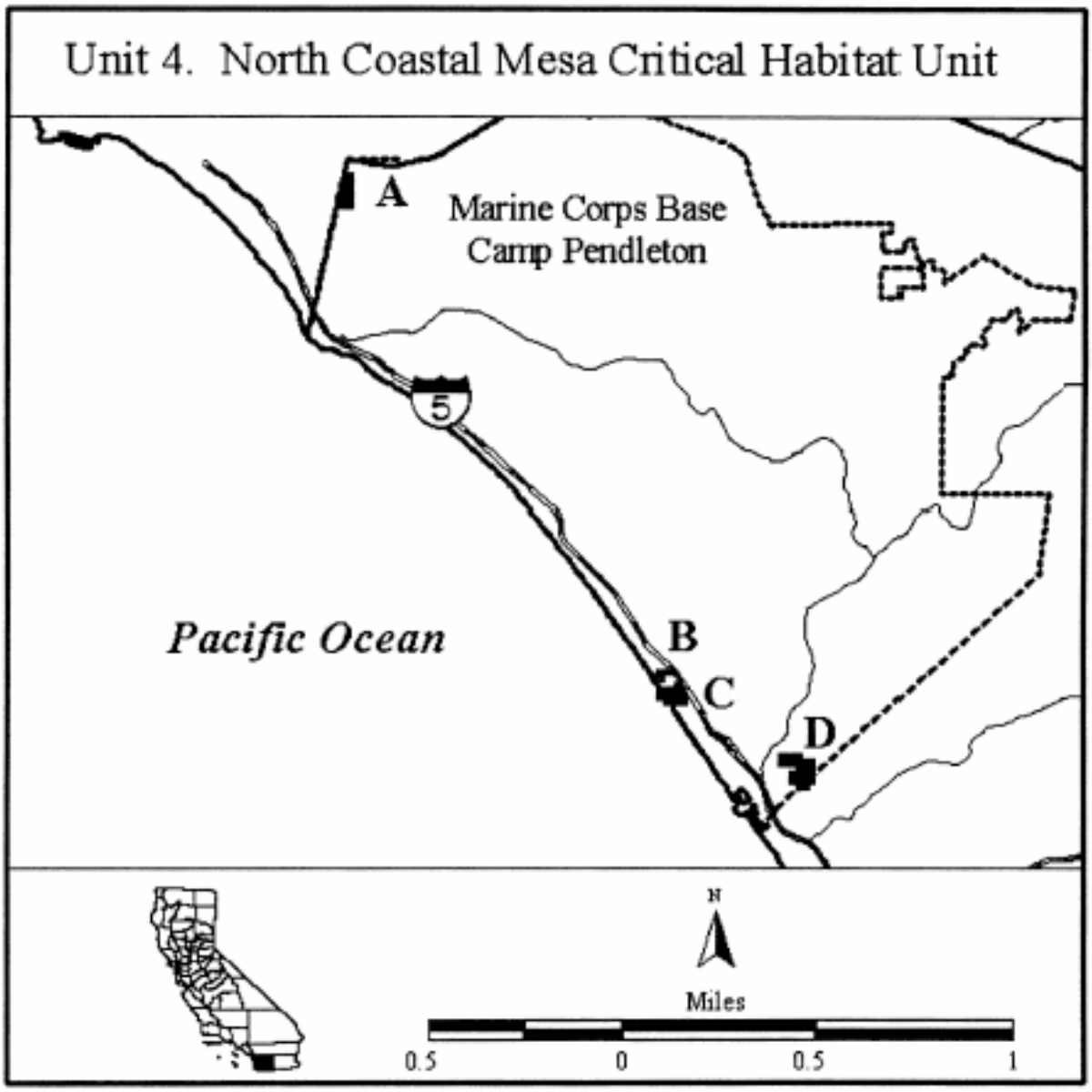


Figure 7.

Distribution of
Branchinecta sandiegonensis

Approximate range of species



Designated critical habitat for the Riverside fairy shrimp.

Streptocephalus woottoni **(Riverside fairy shrimp)**

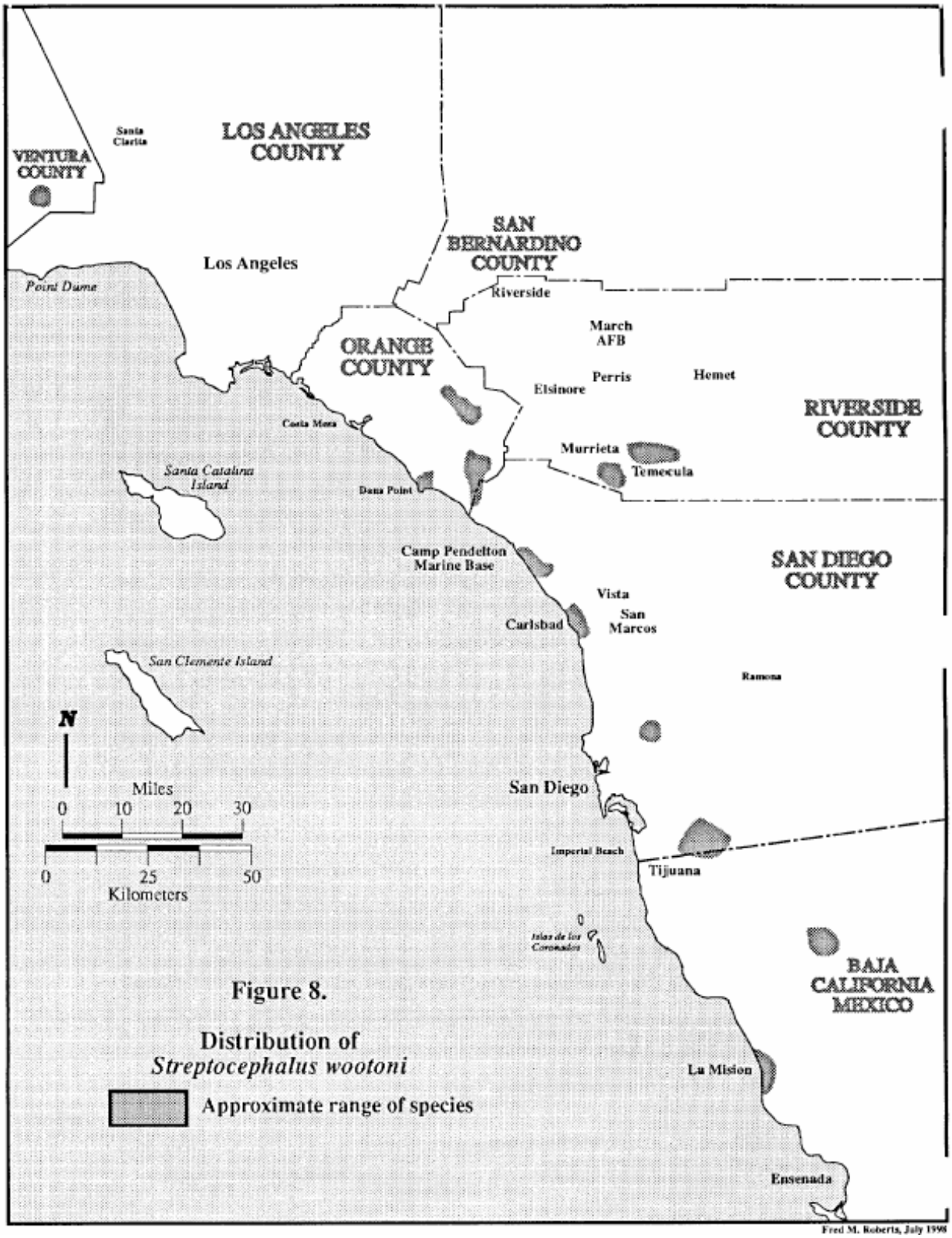
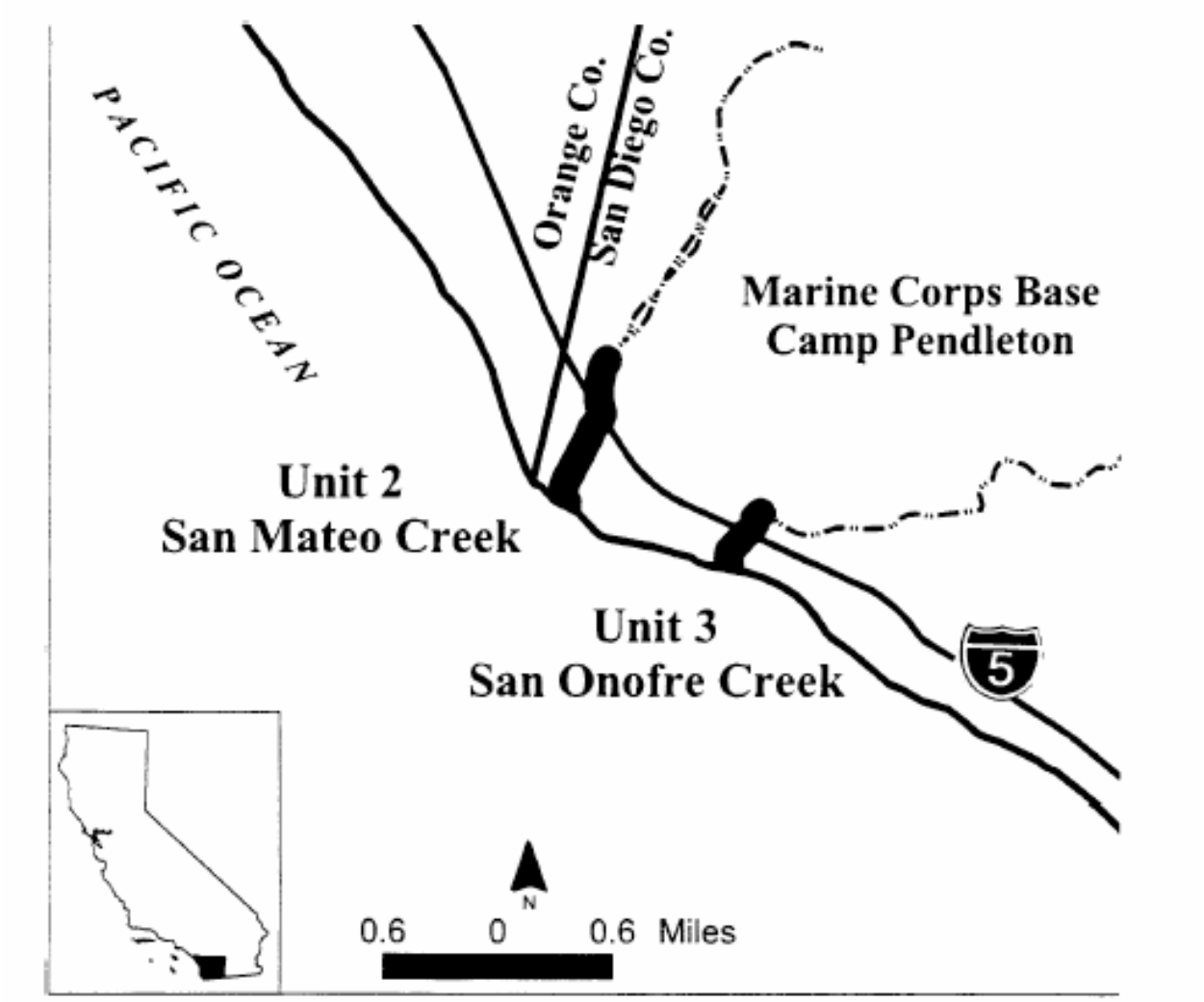


Figure 8.

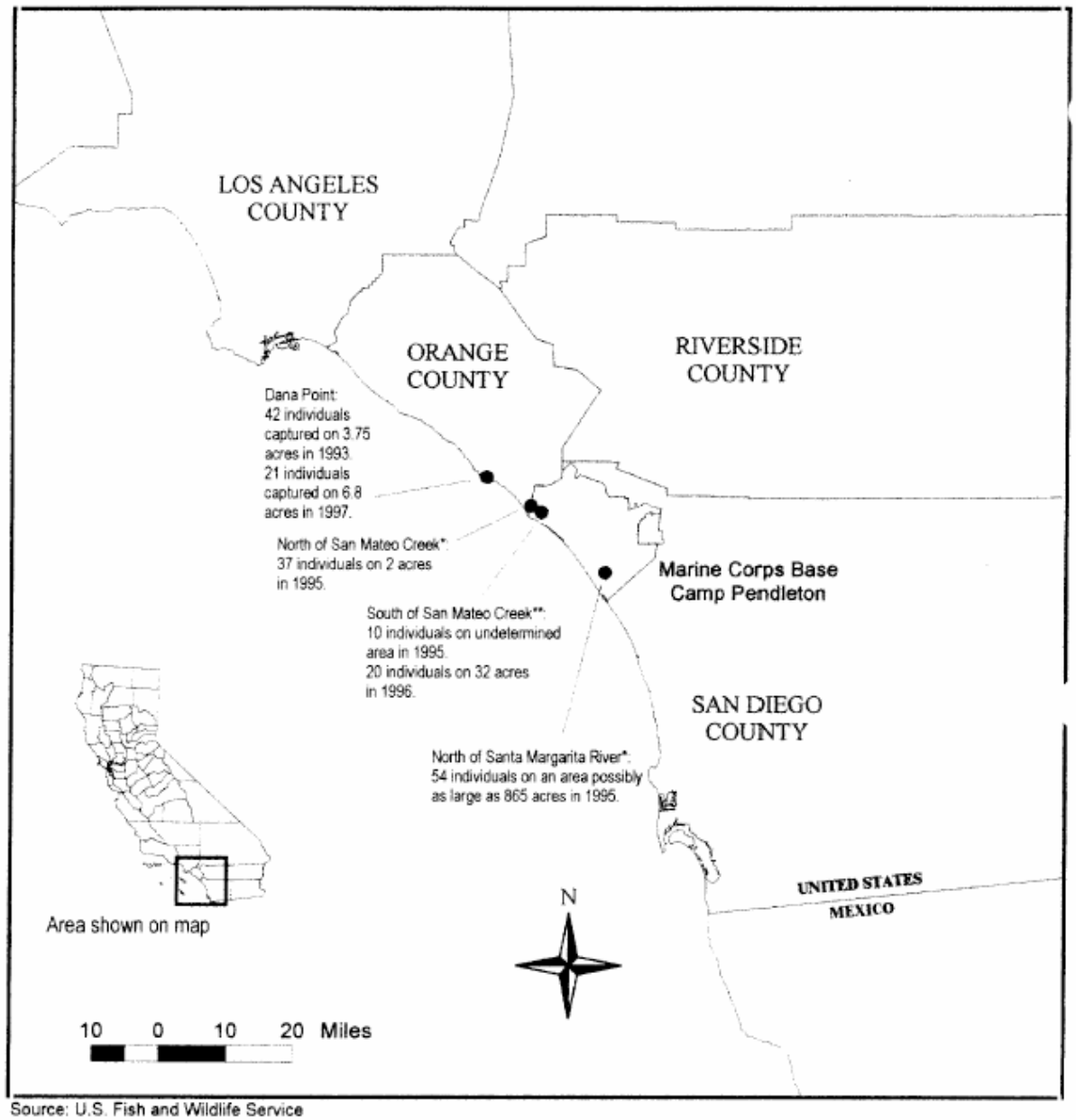
Distribution of
Streptocephalus wootoni

Approximate range of species



Designated critical habitat for the tidewater goby.

Eucyclogobius newberryi **(tidewater goby)**



Source: U.S. Fish and Wildlife Service
Brylski (1993, unpublished data)

* Minimum number of individuals known to occur at time of survey.

** North and South San Mateo Creek, map represent a single population.

6

Figure 2. Locations of known populations

Perognathus longimembris pacificus **(Pacific Pocket Mouse).**

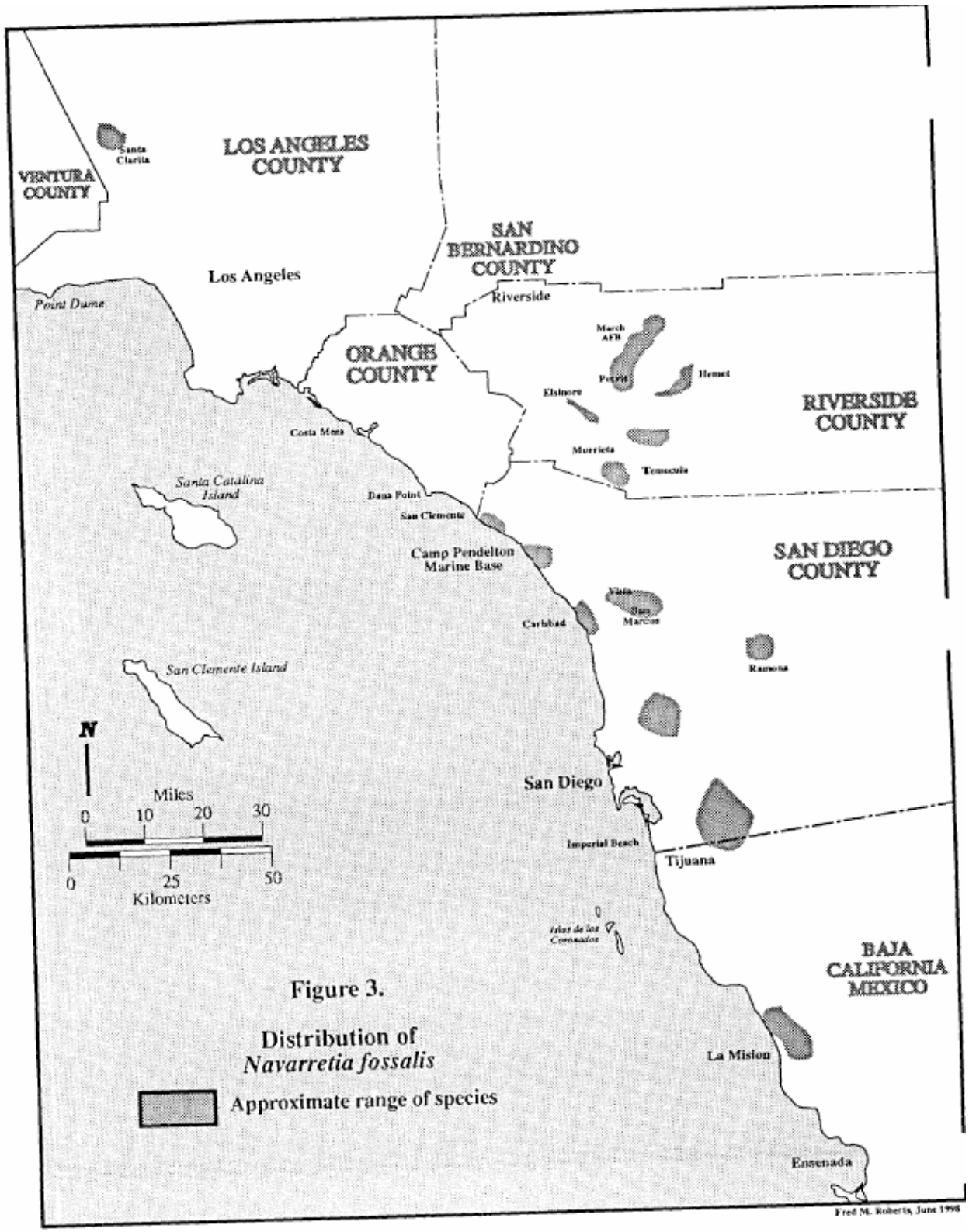


Figure 3.

Distribution of *Navarretia fossalis*

Approximate range of species

Navarretia fossalis **(prostrate navarretia)**

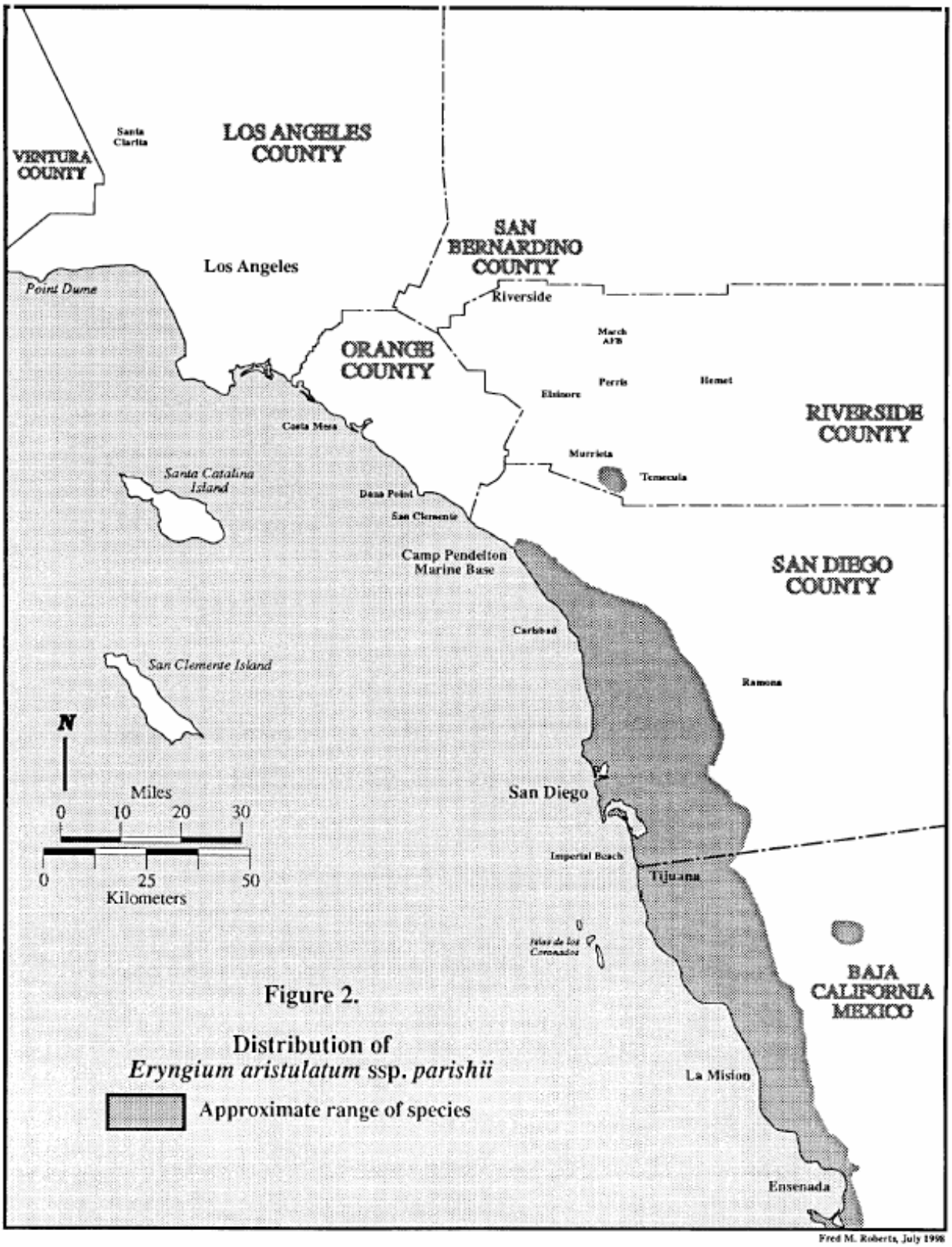


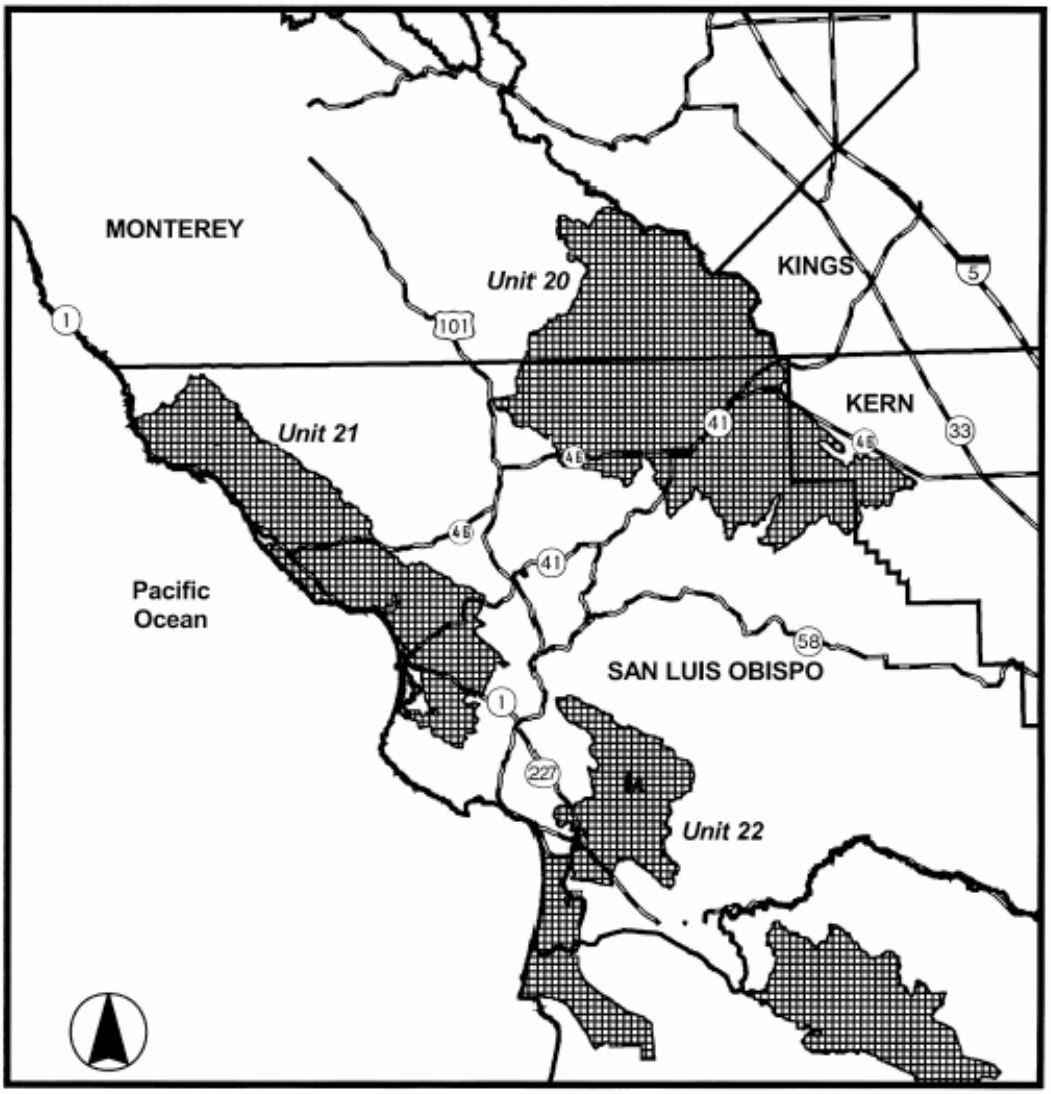
Figure 2.

Distribution of
Eryngium aristulatum* ssp. *parishii

Approximate range of species

***Eryngium aristulatum* ssp. *parishii* (San Diego button-celery)**

APPENDIX B.5 Distribution of Selected Species in the Vicinity of Diablo Canyon



Map 8 - Critical Habitat
Units 20, 21, 22
California Red-Legged Frog

8 0 8 16 Miles

1:1091758

Rana aurora draytoni **(California red-legged frog)**

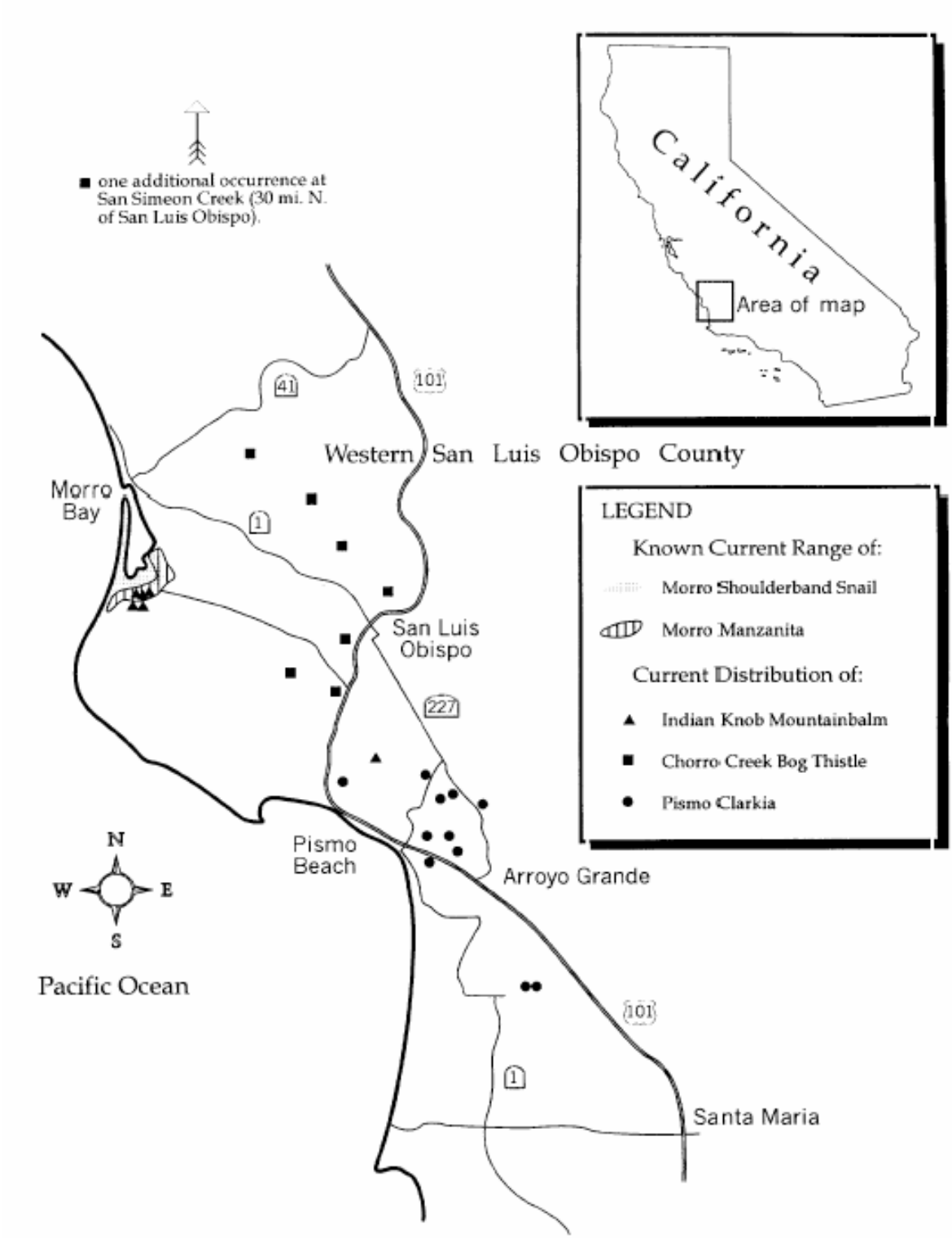
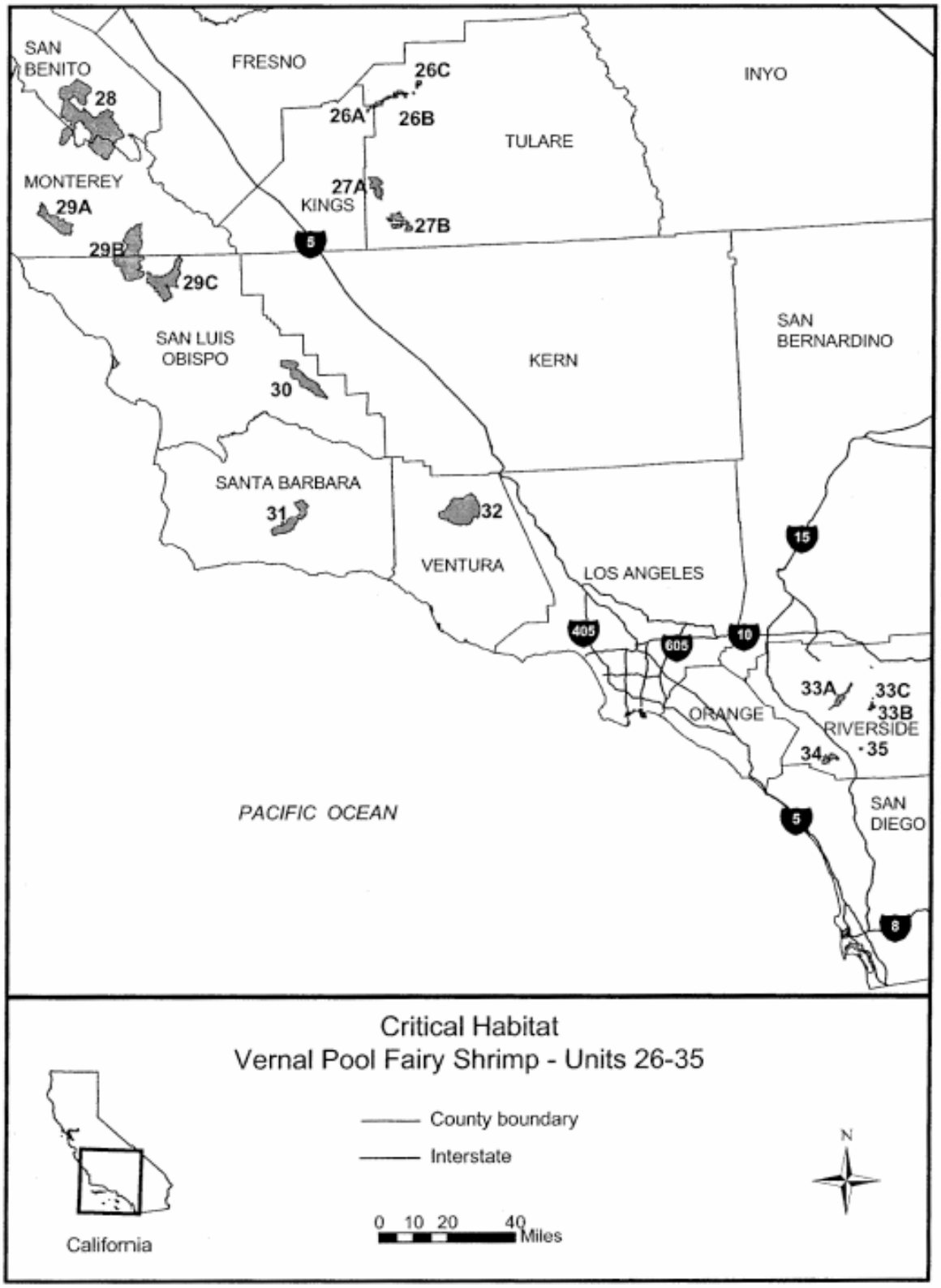
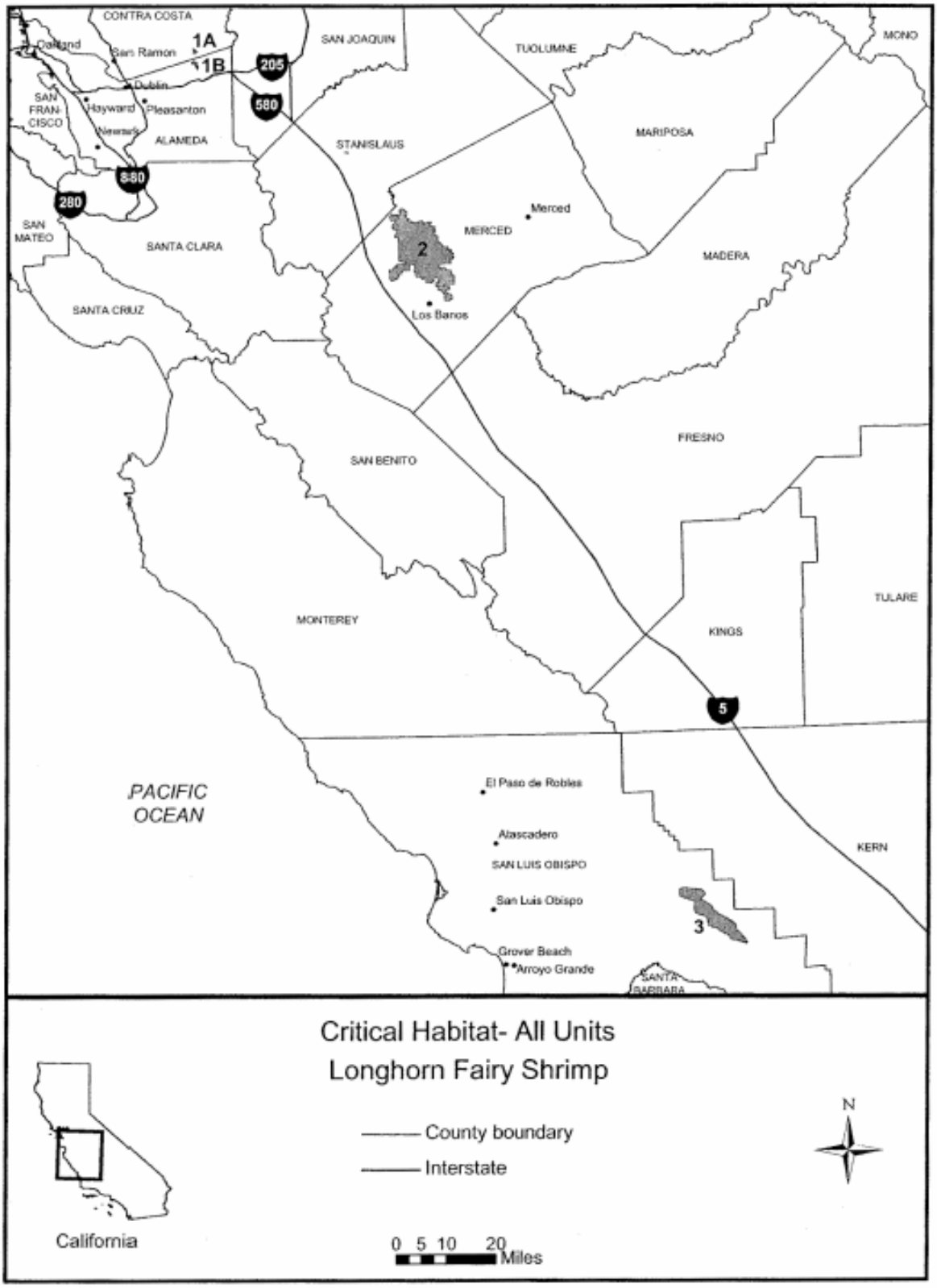


Figure 1. Distribution of the five taxa.

Five western San Luis Obispo County species



Branchinecta lynchi **(vernal pool fairy shrimp)**



Branchinecta longiantenna **(longhorn fairy shrimp)**

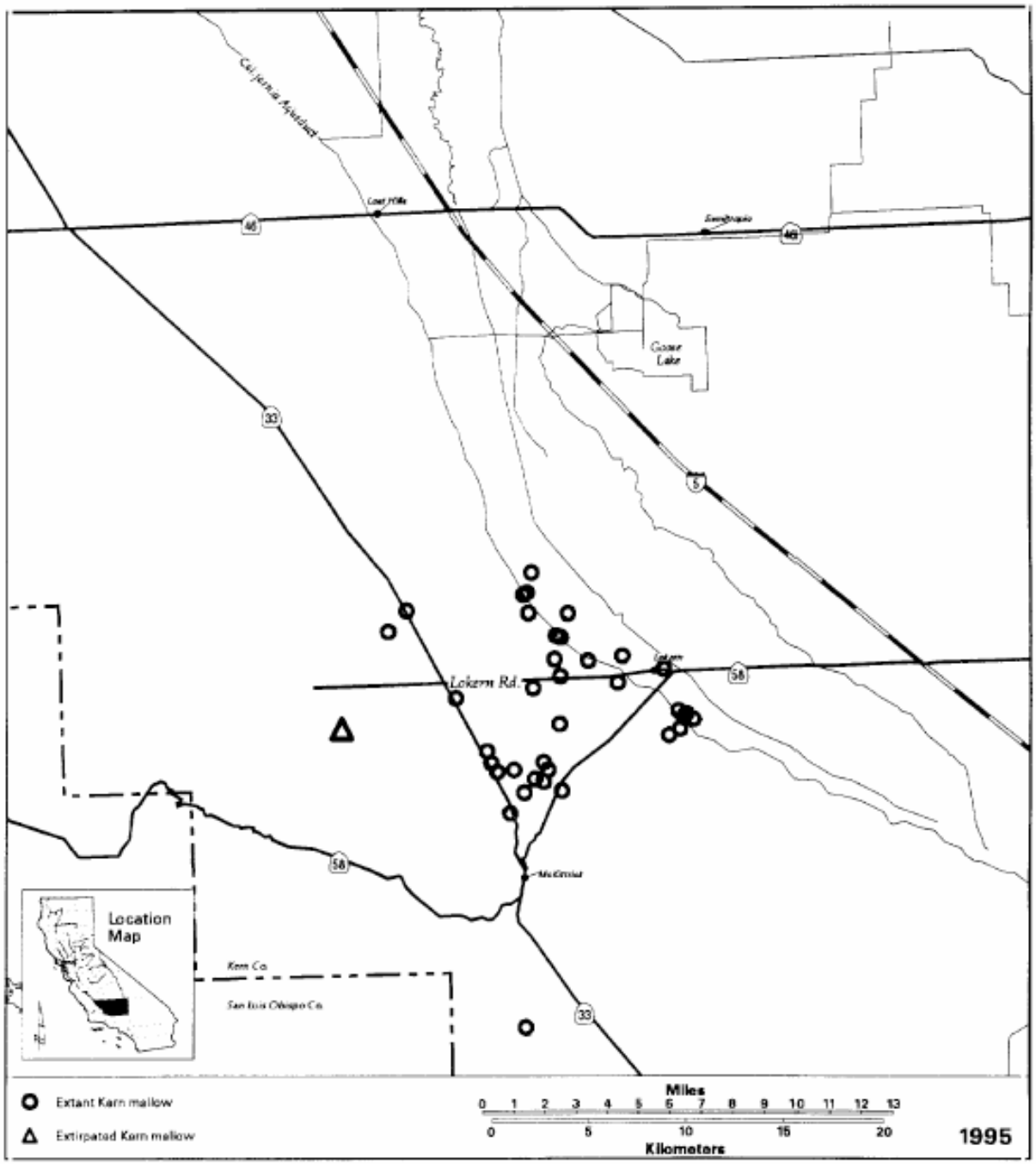


Figure 10. Distribution of Kern mallow (*Eremalche kernensis*).

***Eremalche kernensis* (Kern mallow)**

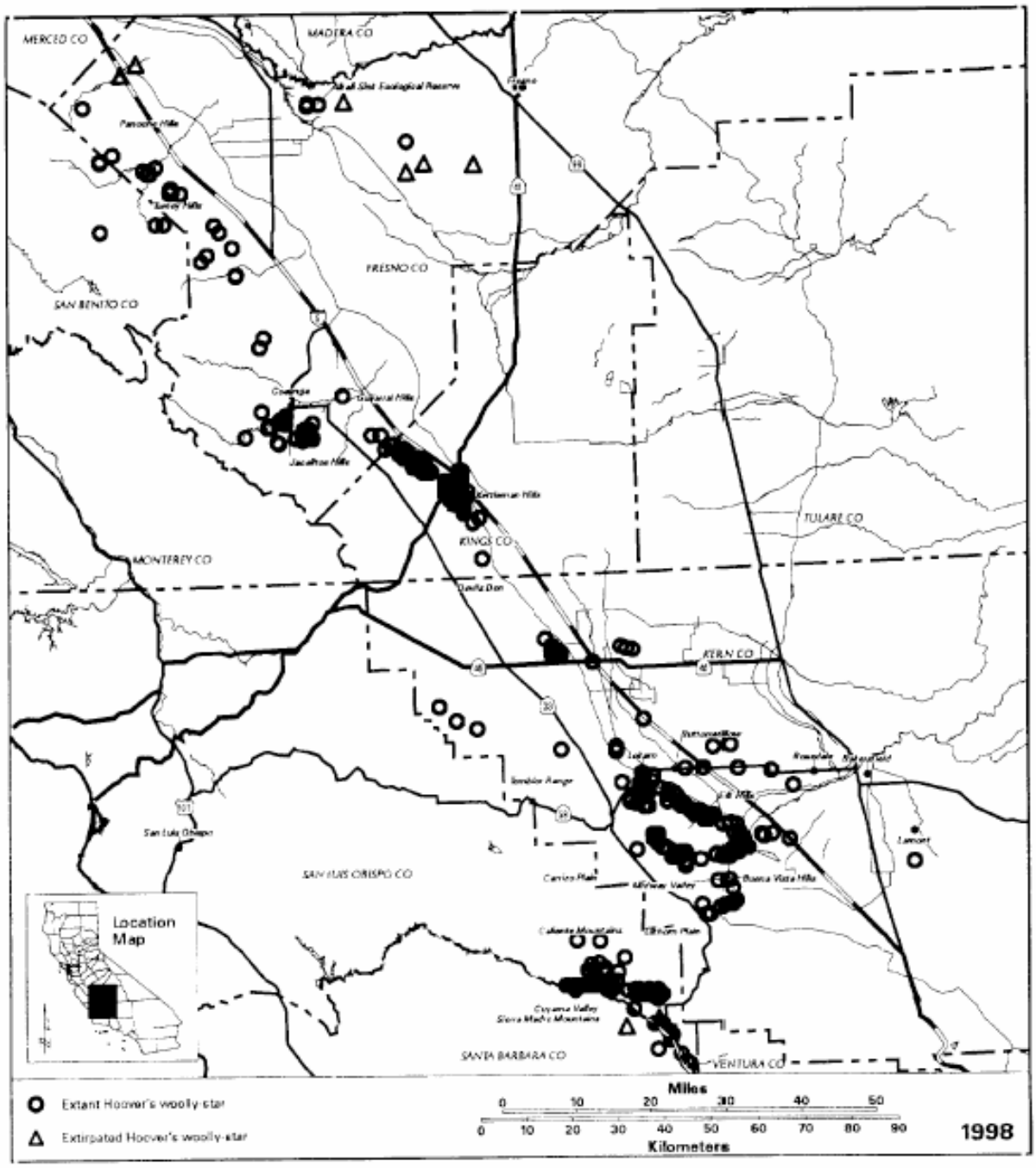


Figure 12. Distribution of Hoover's woolly-star (*Eriastrum hooveri*).

Eriastrum hooverii **(Hoover's wooly-star)**

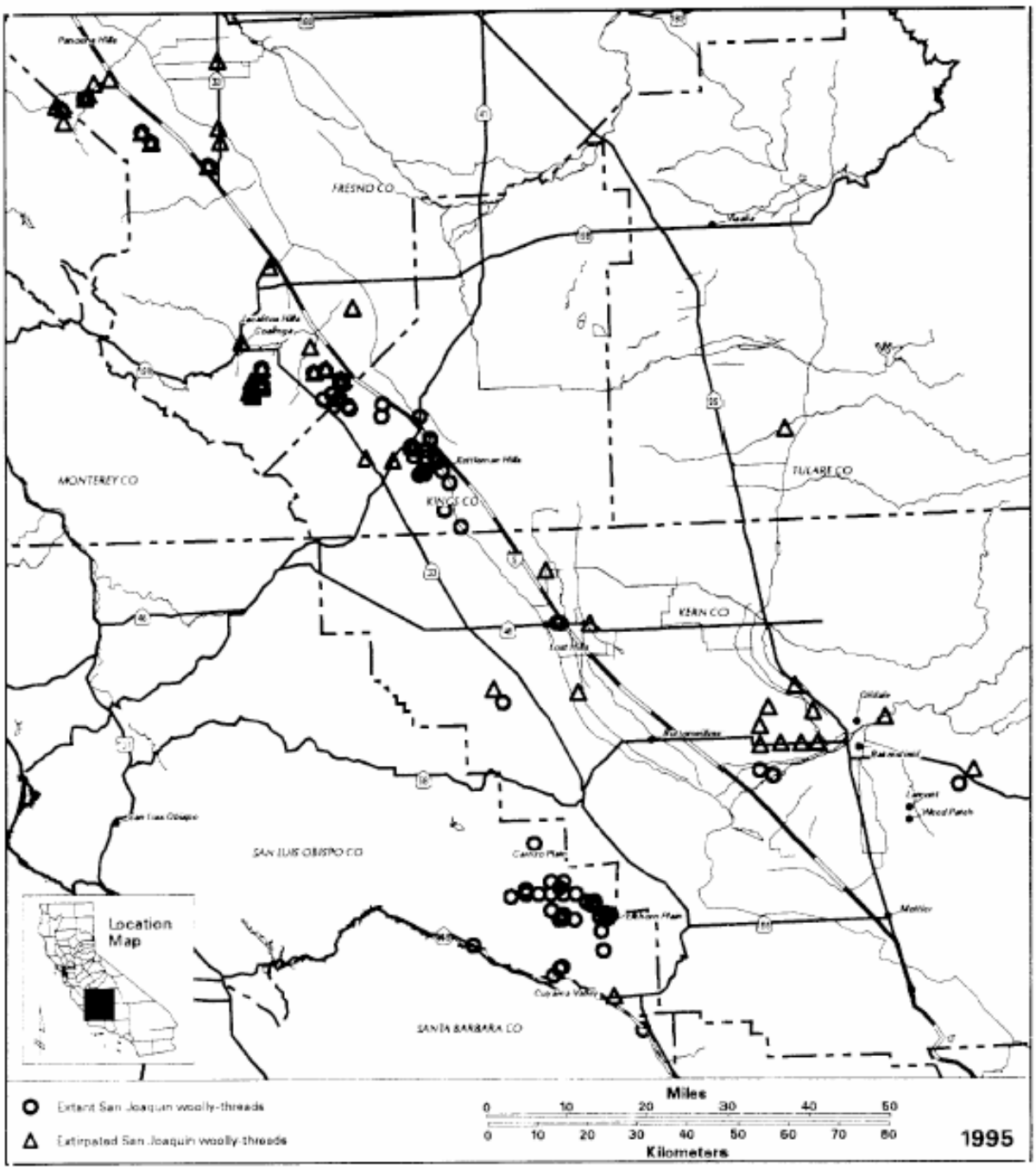


Figure 14. Distribution of San Joaquin woolly-threads *(Lembertia congdonii)*.

***Lembertia congdonii* (San Joaquin woolly-threads)**

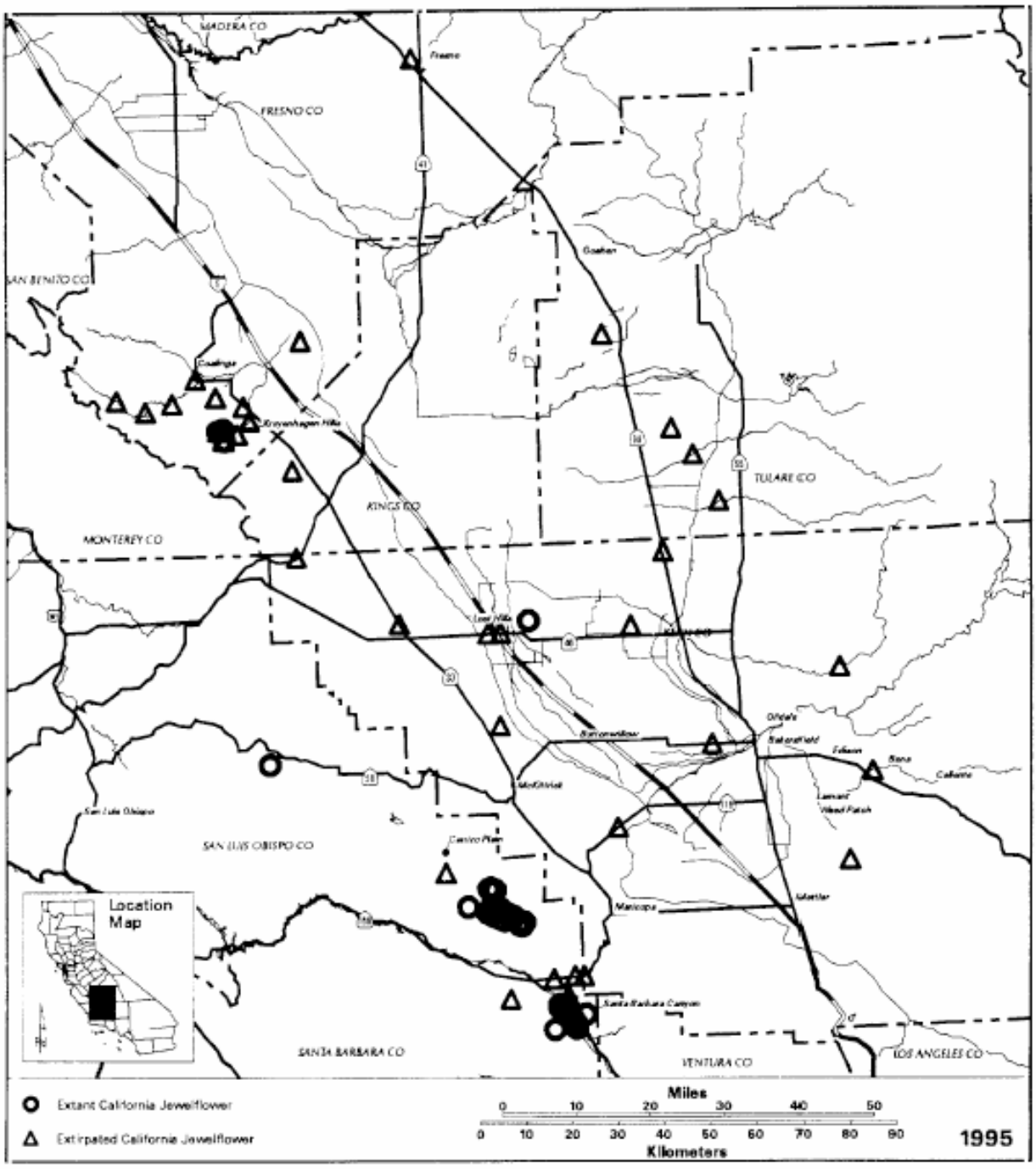


Figure 6. Distribution of California jewelflower *(Caulanthus californicus)*.

***Caulanthus californicus* (California jewelflower)**

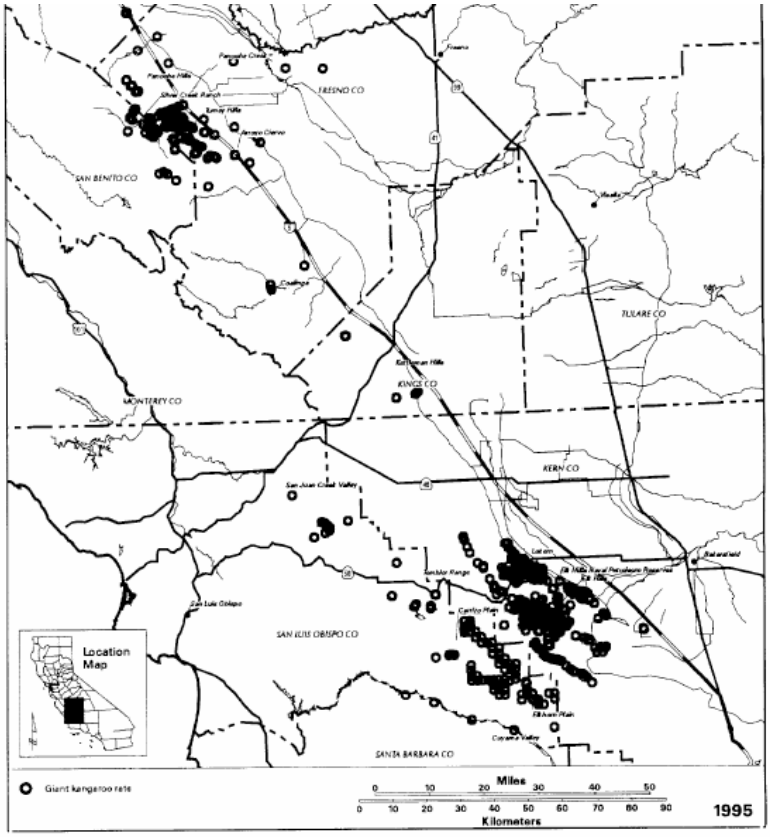


Figure 38. Distributional records of the giant kangaroo rat *(Dipodomys ingens).*

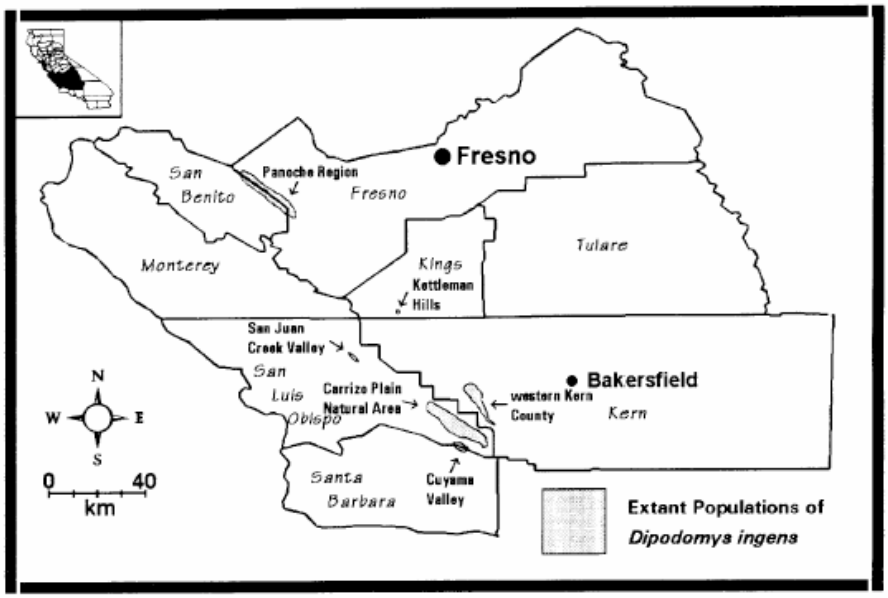


Figure 39. Locations of extant populations of giant kangaroo rats *(Dipodomys ingens).*

Dipodomys ingens (giant kangaroo rat)

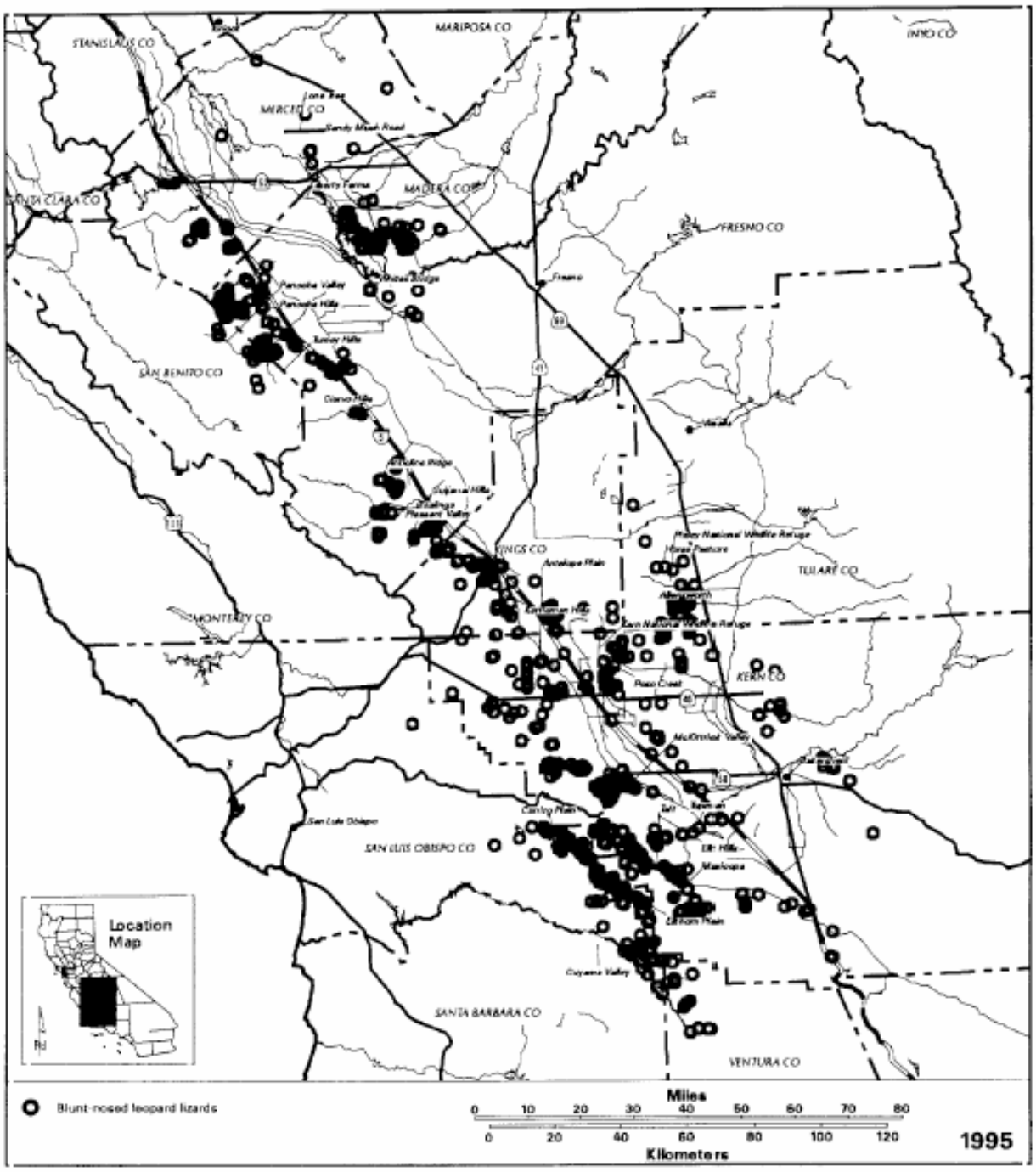


Figure 49. Distributional records for the blunt-nosed leopard lizard *(Gambelia sila)*.

Gambelia silas **(blunt-nosed leopard lizard)**

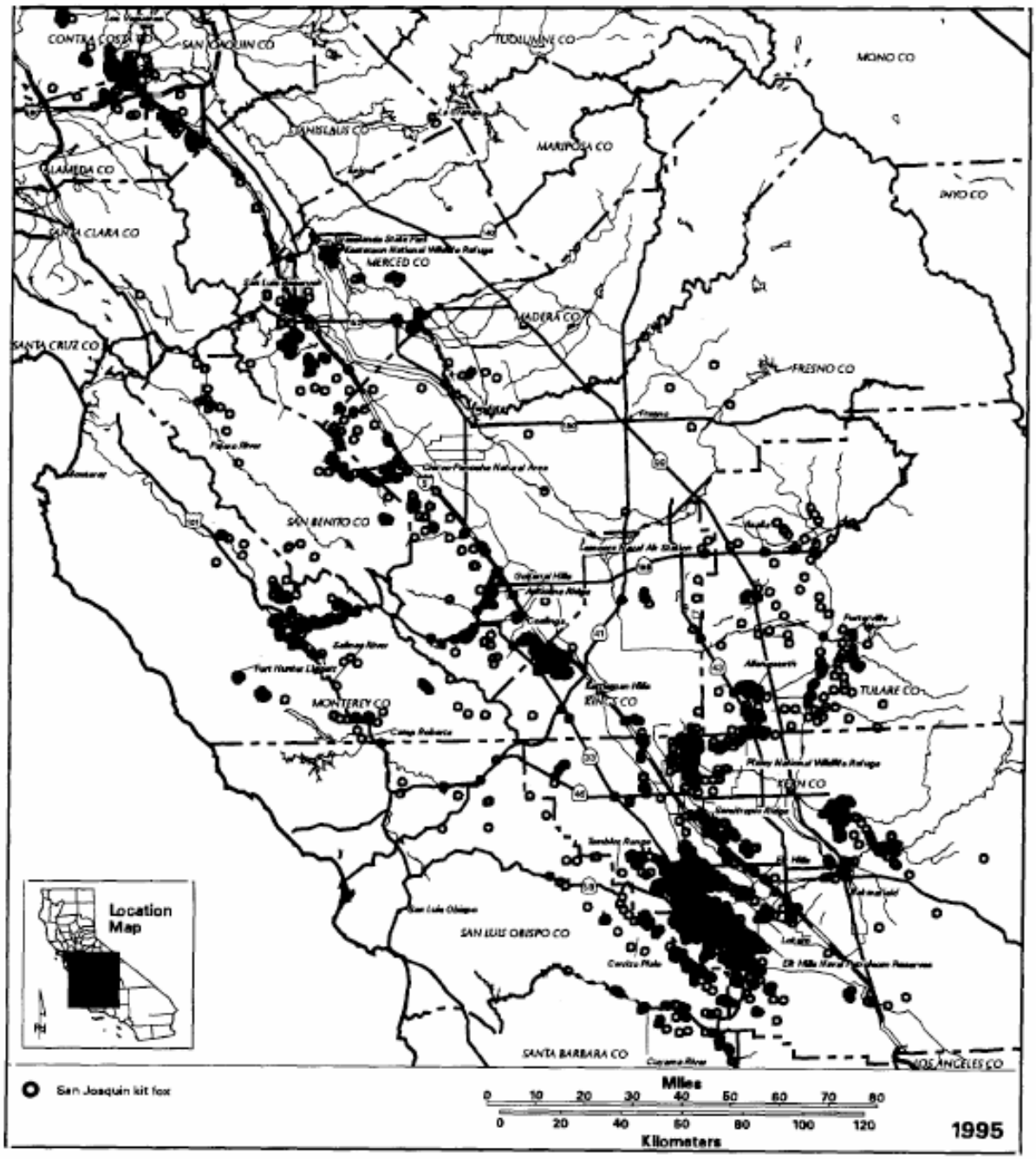
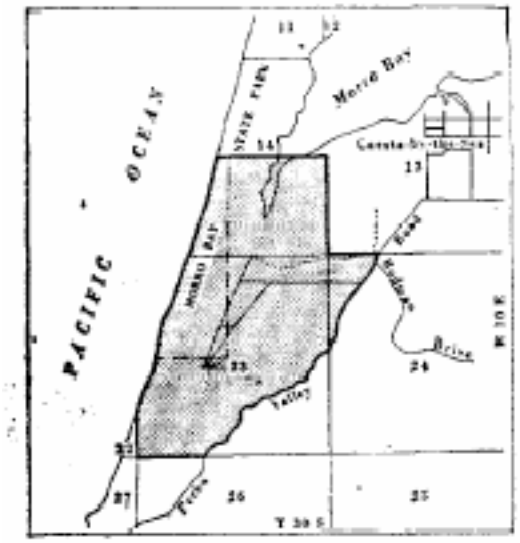


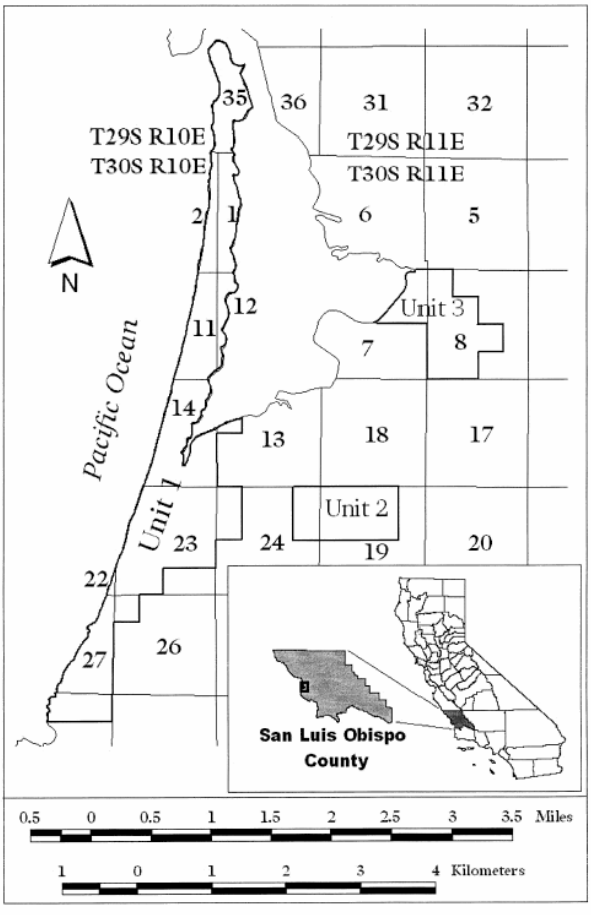
Figure 51. Map of distributional records for the San Joaquin kit fox *(Vulpes macrotis mutica)*.

Vulpes macrotis mutica **(San Joaquin kit fox)**



CRITICAL HABITAT FOR THE MORRO BAY KANGAROO RAT

Dipodomys heermanni morroensis **(Morro bay kangaroo rat)**



Critical Habitat

Helminthoglypta walkeriana **(Morro Shoulderband snail)**

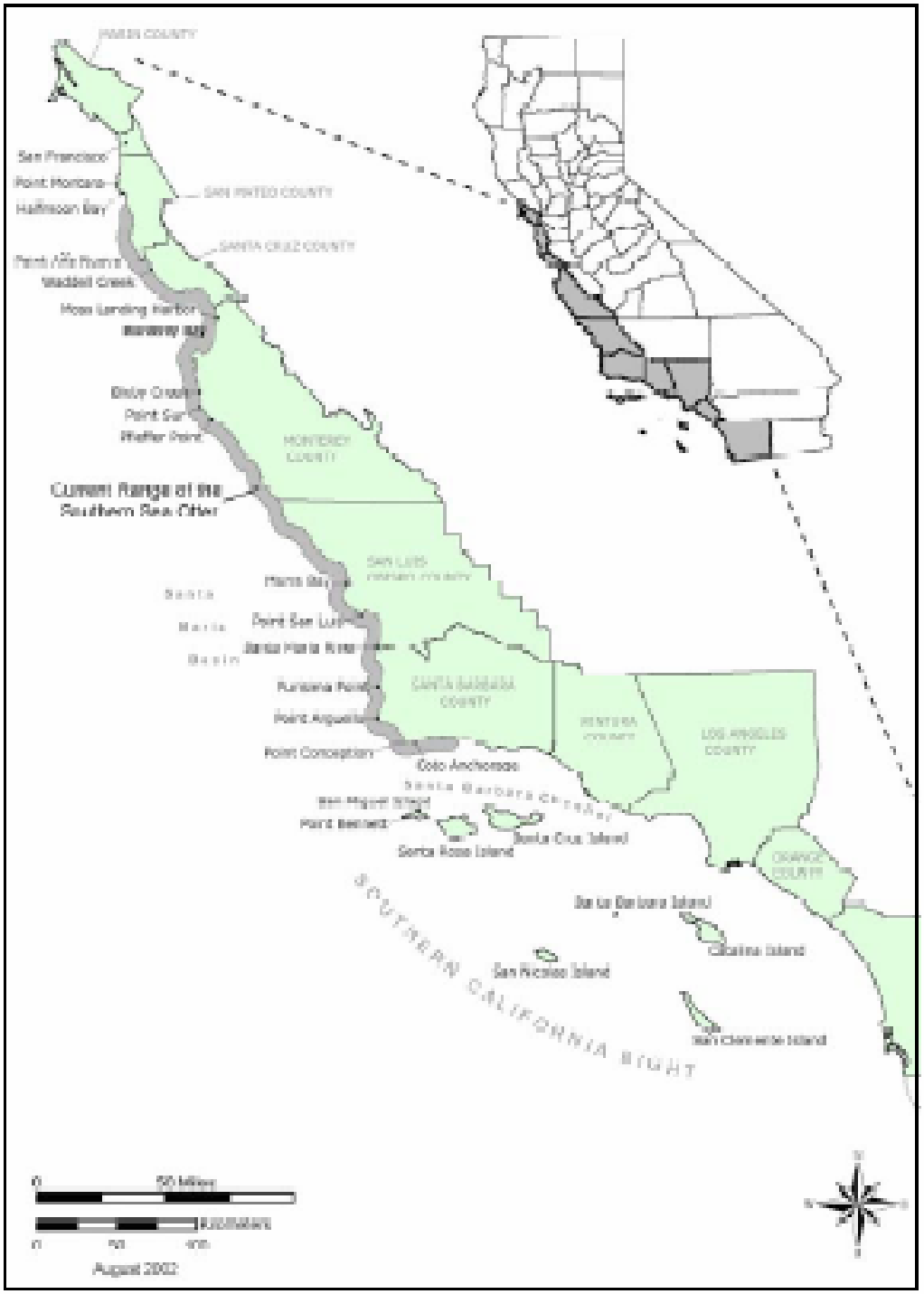


Figure 2. Current range of the southern sea otter.

Enhydra lutris nereis **(Southern sea otter)**

Distribution List

Offsite (5)

5 Mr. James H. Wilson
U.S. Nuclear Regulatory Commission
One White Flint North, MS 11 F 1
11555 Rockville Pike
Rockville, Md 20852-2738

Pacific Northwest National Laboratory (15)

J. M. Becker	K6-85
C. A. Brandt	K6-85
A. L. Bunn	K6-85
D. A. Neitzel	K6-85
(7) M. R. Sackschewsky	K6-85
S. L. Sargeant	Sequim
J. A. Stegen	K6-85

(2) Hanford Technical Library