

APPENDIX B
SPECIES THAT ARE FEDERALLY LISTED AS THREATENED OR ENDANGERED
IN THE STATE OF MICHIGAN

(T= Threatened, E= Endangered)

Animals

- E Bat, Indiana (*Myotis sodalis*)
- E Beetle, American burying (*Nicrophorus americanus*)
- E Beetle, Hungerford's crawling water (*Brychius hungerfordi*)
- E Butterfly, Karner blue (*Lycaeides melissa samuelis*)
- E Butterfly, Mitchell's satyr (*Neonympha mitchellii mitchellii*)
- E Clubshell Entire Range; Except where listed as Experimental Populations (*Pleurobema clava*)
- T Eagle, bald (lower 48 States) (*Haliaeetus leucocephalus*)
- E Plover, piping (Great Lakes watershed) (*Charadrius melodus*)
- E Puma (=cougar), eastern (*Puma (=Felis) concolor cougar*)
- E Riffleshell, northern (*Epioblasma torulosa rangiana*)
- T Snake, copperbelly water (MI, OH, IN N of 400 N. Lat.) (*Nerodia erythrogaster neglecta*)
- E Warbler (=wood), Kirtland's (*Dendroica kirtlandii*)
- T Wolf, gray Eastern Distinct Population Segment (*Canis lupus*)

Plants

- T Fern, American hart's-tongue (*Asplenium scolopendrium* var. *americanum*)
- T Thistle, Pitcher's (*Cirsium pitcheri*)
- T Daisy, lakeside (*Hymenoxys herbacea*)
- T Iris, dwarf lake (*Iris lacustris*)
- T Pogonia, small whorled (*Isotria medeoloides*)
- E Monkey-flower, Michigan (*Mimulus glabratus* var. *michiganensis*)
- T Orchid, eastern prairie fringed (*Platanthera leucophaea*)
- T Goldenrod, Houghton's (*Solidago houghtonii*)

APPENDIX C
SPECIES THAT ARE STATE LISTED AS ENDANGERED AND THREATENED
IN THE STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

WILDLIFE DIVISION

ENDANGERED AND THREATENED SPECIES

(By authority conferred on the department of natural resources by section
36503 of 1994 PA 451, MCL 324.36503)

R 299.1021 Mollusks.

Rule 1. (1) The following species of mollusks of class Pelecypoda (mussels) are included on the state list of endangered species:

- | | |
|---|----------------------|
| (a) Epioblasma obliqua perobliqua (Lea)
[Dysnomia sulcata (Conrad)] | White catspaw |
| (b) Epioblasma torulosa rangiana (Rafinesque)
[Dysnomia torulosa rangiana (Lea)] | Northern riffleshell |
| (c) Epioblasma triquetra (Rafinesque)
[Dysnomia triquetra (Rafinesque)] | Snuffbox |
| (d) Obovaria subrotunda (Rafinesque) | Round hickorynut |
| (e) Pleurobema clava (Lamarck) | Clubshell |
| (f) Simpsoniaias ambigua (Say)
[Simpsoniconcha ambigua (Say)] | Salamander mussel |
| (g) Toxolasma lividus (Rafinesque)
[Carunculina glans (Lea)] | Purple lilliput |
| (h) Villosa fabalis (Lea) | Rayed bean |

(2) The following species of mollusks of class Pelecypoda (mussels) are included on the state list of threatened species:

- | | |
|-----------------------------------|----------------------|
| (a) Anodonta subgibbosa (Anthony) | Lake floater |
| (b) Lampsilis fasciola Rafinesque | Wavyrayed lampmussel |

(3) The following species of mollusks of class Gastropoda (snails) are included on the state list of endangered species:

- | | |
|--|--------------------|
| (a) Planorbella multivolvis(Case) [Helisoma multivolvis] | Acorn ramshorn |
| (b) Stagnicola petoskeyensis (Walker) | Petoskey pondsnail |

(4) The following species of mollusks of class Gastropoda (snails) are included on the state list of threatened species:

- | | |
|---|---------------------|
| (a) Hendersonia occulta (Say) | Cherrystone drop |
| (b) Stagnicola contracta (Currier) [Lymanaea contracta] | Deepwater pondsnail |

R 299.1022 Insects.

Rule 2. (1) The following species of insects are included on the state list of endangered species:

- | | |
|--|------------------------------------|
| (a) <i>Brychius hungerfordi</i> Spangler | Hungerford's crawling water beetle |
| (b) <i>Catocala amestris</i> Strecker | Three-staff underwing |
| (c) <i>Neonympha mitchellii mitchellii</i> | French Mitchell's satyr |
| (d) <i>Nicrophorus americanus</i> Olivier | American burying beetle |
| (e) <i>Schinia indiana</i> (Smith) | Phlox moth |
| (f) <i>Schinia lucens</i> (Morrison) | Leadplant moth |
| (g) <i>Somatochlora hineana</i> Williamson | Hine's emerald dragonfly |
| (h) <i>Speyeria idalia</i> (Drury) | Regal fritillary |

(2) The following species of insects are included on the state list of threatened species:

- | | |
|---|-------------------------|
| (a) <i>Atrytonopsis hianna</i> Scudder | Dusted skipper |
| (b) <i>Erynnis persius persius</i> Scudder | Persius dusky wing |
| (c) <i>Euphyes dukesi</i> (Lindsey) | Dukes' skipper |
| (d) <i>Hesperia ottoe</i> Edwards | Ottoe skipper |
| (e) <i>Incisalia irus</i> Godart | Frosted elfin |
| (f) <i>Lepyronia gibbosa</i> Ball | Great Plains spittlebug |
| (g) <i>Lycaeides idas nabokovi</i> Masters | Northern blue |
| (h) <i>Lycaeides melissa samuelis</i> Nabakov | Karner blue |
| (i) <i>Oarisma powesheik</i> (Parker) | Powesheik skipperling |
| (j) <i>Papaipema silphii</i> Bird | Silphium borer moth |
| (k) <i>Trimerotropis huroniana</i> E. M. Walker | Lake Huron locust |

R 299.1023 Fishes.

Rule 3. (1) The following species of fishes are included on the state list of endangered species:

- | | |
|--|------------------------|
| (a) <i>Clinostomus elongatus</i> (Kirtland) | Redside dace |
| (b) <i>Erimyzon oblongus</i> (Mitchill) | Creek chubsucker |
| (c) <i>Notropis photogenis</i> (Cope) | Silver shiner |
| (d) <i>Noturus stigmosus</i> Taylor | Northern madtom |
| (e) <i>Opsopoeodus emiliae</i> Hay | Pugnose minnow |
| (f) <i>Percina shumardi</i> (Girard) | River darter |
| (g) <i>Percina copelandi</i> (Jordan) | Channel darter |
| (h) <i>Phoxinus erythrogaster</i> (Rafinesque) | Southern redbelly dace |

(2) The following species of fishes are included on the state list of threatened species:

- | | |
|---|-----------------------|
| (a) <i>Acipenser fulvescens</i> Rafinesque | Lake sturgeon |
| (b) <i>Ammocrypta pellucida</i> (Putnam) | Eastern sand darter |
| (c) <i>Coregonus artedii</i> Lesueur | Cisco or lake herring |
| (d) <i>Coregonus zenithicus</i> (Jordan and Evermann) | Shortjaw cisco |
| (e) <i>Hiodon tergisus</i> Lesueur | Mooneye |
| (f) <i>Moxostoma carinatum</i> (Cope) | River redhorse |
| (g) <i>Stizostedion canadense</i> (Smith) | Sauger |

(3) The following species of fishes are thought to be extirpated in Michigan, but, if rediscovered, will automatically be listed as threatened:

- | | |
|---------------------------------------|-----------------|
| (a) <i>Coregonus johanna</i> (Wagner) | Deepwater cisco |
|---------------------------------------|-----------------|

- | | |
|---|------------------|
| (b) <i>Coregonus nigripinnis</i> (Gill) | Blackfin cisco |
| (c) <i>Coregonus reighardi</i> (Koelz) | Shortnose cisco |
| (d) <i>Notropis amblops</i> (Rafinesque) | Bigeye chub |
| (e) <i>Notropis chalybaeus</i> (Cope) | Ironcolor shiner |
| (f) <i>Notropis texanus</i> (Girard) | Weed shiner |
| (g) <i>Polyodon spathula</i> (Walbaum) | Paddlefish |
| (h) <i>Stizostedion vitreum glaucum</i> (Hubbs) | Bluepike |
| (i) <i>Thymallus arcticus</i> (Richardson) | Arctic grayling |

R 299.1024 Amphibians.

Rule 4. (1) The following species of amphibians is included on the state list of endangered species:

<i>Ambystoma texanum</i> (Matthews)	Smallmouth salamander
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(2) The following species of amphibians is included on the state list of threatened species:

<i>Ambystoma opacum</i> (Gravenhorst)	Marbled salamander
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R 299.1025 Reptiles.

Rule 5. (1) The following species of reptiles are included on the state list of endangered species:

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|--|------------------------|
| (a) <i>Clonophis kirtlandii</i> (Kennicott) | Kirtland's snake |
| (b) <i>Nerodia erythrogaster neglecta</i> (Conant) | Copperbelly watersnake |

(2) The following species of reptiles are included on the state list of threatened species:

- | | |
|--|-------------------|
| (a) <i>Elaphe vulpina gloydii</i> Conant | Eastern fox snake |
| (b) <i>Clemmys guttata</i> | Spotted turtle |

R 299.1026 Birds.

Rule 6. (1) The following species of birds are included on the state list of endangered species:

- | | |
|---|---------------------------|
| (a) <i>Asio flammeus</i> (Pontoppidan) | Short-eared owl |
| (b) <i>Charadrius melodus</i> Ord | Piping plover |
| (c) <i>Dendroica discolor</i> (Vieillot) | Prairie warbler |
| (d) <i>Dendroica kirtlandii</i> (Baird) | Kirtland's warbler |
| (e) <i>Falco peregrinus</i> Tunstall | Peregrine falcon |
| (f) <i>Lanius ludovicianus migrans</i> (Palmer) | Migrant loggerhead shrike |
| (g) <i>Rallus elegans</i> Audubon | King rail |
| (h) <i>Tyto alba</i> (Scopoli) | Barn owl |

(2) The following species of birds are included on the state list of threatened species:

- | | |
|---|-------------------------|
| (a) <i>Ammodramus henslowii</i> Audubon | Henslow's sparrow |
| (b) <i>Asio otis</i> (Linnaeus) | Long-eared owl |
| (c) <i>Buteo lineatus</i> (Gmelin) | Red-shouldered hawk |
| (d) <i>Corturnicops noveboracensis</i> (Gmelin) | Yellow rail |
| (e) <i>Dendroica dominica</i> (Linnaeus) | Yellow-throated warbler |
| (f) <i>Falco columbarius</i> (Linnaeus) | Merlin |
| (g) <i>Gavia immer</i> (Brunnich) | Common loon |
| (h) <i>Haliaeetus leucocephalus</i> (Linnaeus) | Bald eagle |

- | | |
|---|----------------|
| (i) <i>Ixobrychus exilis</i> (Gmelin) | Least bittern |
| (j) <i>Pandion haliaetus</i> (Linnaeus) | Osprey |
| (k) <i>Sterna caspia</i> Pallas | Caspian tern |
| (l) <i>Sterna hirundo</i> Linnaeus | Common tern |
| (m) <i>Cygnus buccinator</i> Richardson | Trumpeter swan |

(3) The following species of birds are thought to be extirpated in Michigan, but, if rediscovered, will automatically be listed as threatened:

- | | |
|-----------------------------------|--------------|
| <i>Chondestes grammacus</i> (Say) | Lark sparrow |
|-----------------------------------|--------------|

R 299.1027 Mammals.

Rule 7. (1) The following species of mammals are included on the state list of endangered species:

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|--|--------------|
| (A) <i>Felis concolor</i> Linnaeus | Cougar |
| (B) <i>Lynx canadensis</i> Kerr | Lynx |
| (C) <i>Microtus ochrogaster</i> (Wagner) | Prairie vole |
| (D) <i>Myotis sodalis</i> Miller and Allen | Indiana bat |

(2) The following species of mammals are included on the state list of threatened species:

- | | |
|----------------------------------|-------------|
| (A) <i>Canis lupus</i> Linnaeus | Gray wolf |
| (B) <i>Cryptotis parva</i> (Say) | Least shrew |

R 299.1028 Plants.

Rule 8. (1) The following species of plants are included on the state list of endangered species:

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|--|---------------------------|
| (a) <i>Agalinis gattingeri</i> Small
[<i>Gerardia gattingeri</i> Small] | Gattinger's gerardia |
| (b) <i>A. skinneriana</i> (A. Wood) Britton
[<i>Gerardia skinneriana</i> A. Wood] | Skinner's gerardia |
| (c) <i>Amerorchis rotundifolia</i> (Pursh) Hultén | Small round-leaved orchis |
| (d) <i>Asclepias ovalifolia</i> Dcne. | Dwarf milkweed |
| (e) <i>Androsace occidentalis</i> Pursh | Rock-jasmine |
| (f) <i>Arnica cordifolia</i> Hooker | Heart-leaved arnica |
| (g) <i>Asplenium ruta-muraria</i> L. | Wall-rue |
| (h) <i>A. scolopendrium</i> L. var. <i>americana</i>
(Fernald) Kartesz & Ghandi
[<i>Phyllitis scolopendrium</i> var. <i>americanum</i> Fern.] | Hart's-tongue fern |
| (i) <i>Baptisia leucophaea</i> Nutt. | Cream wild indigo |
| (j) <i>Botrychium acuminatum</i> W. H. Wagner | Moonwort |
| (k) <i>Carex heleonastes</i> Ehrh. | Hudson Bay sedge |
| (l) <i>C. nigra</i> (L.) Reichard | Black sedge |
| (m) <i>C. straminea</i> Willd. | Straw sedge |
| (n) <i>Castanea dentata</i> (Marsh.) Borkh. | American chestnut |
| (o) <i>Chamaerhodos nuttallii</i> Fern. | Rock-rose |
| (p) <i>Chelone obliqua</i> L. | Purple turtlehead |
| (q) <i>Cryptogramma acrostichoides</i> R. Br. | American rock-brake |
| (r) <i>Disporum hookeri</i> (Torrey) Nicholson | Fairy bells |
| (s) <i>Dodecatheon meadia</i> L. | Shooting star |
| (t) <i>Draba glabella</i> Pursh. | Smooth whitlow grass |
| (u) <i>Echinodorus tenellus</i> (Mart.) Buchenau | Dwarf burhead |

(v) <i>Eleocharis atropurpurea</i> (Retz.) Kunth	Purple spike rush
(w) <i>E. microcarpa</i> Torrey	Small-fruited spike-rush
(x) <i>E. nitida</i> Fern.	Slender spike rush
(y) <i>Gentiana flavida</i> A. Gray [<i>G. alba</i> Muhl.]	White gentian
(z) <i>G. puberulenta</i> J. Pringle [<i>G. puberula</i> Michaux]	Downy gentian
(aa) <i>Gymnocarpium jessoense</i> (Koidz.) Koidz.	Northern oak fern
(bb) <i>Hedysarum alpinum</i> L.	Alpine sainfoin
(cc) <i>Hymenoxys herbacea</i> (Greene) Cusick	Lakeside daisy
[<i>Hymenoxys acaulis</i> var. <i>glabra</i> (Gray) Parker	
(dd) <i>Isoetes engelmannii</i> A. Braun	Engelmann's quillwort
(ee) <i>Isotria medeoloides</i> (Pursh) Raf.	Smaller whorled pogonia
(ff) <i>Lygodium palmatum</i> (Bernh.) Sw.	Climbing fern
(gg) <i>Mimulus glabratus</i> var. <i>michiganensis</i> (Pennell) Fassett	Michigan monkey flower
(hh) <i>Nuphar pumila</i> (Timm) DC.	
[<i>N. microphylla</i> (Pers.) Fern.]	Small yellow pond lily
(ii) <i>Nymphaea tetragona</i> Georgi	Pygmy water lily
(jj) <i>Opuntia fragilis</i> (Nutt.) Haw.	Fragile prickly pear
(kk) <i>Panicum polyanthes</i> Schultes	Many-flowered panic grass
(ll) <i>Penstemon gracilis</i> Nutt.	Slender beard tongue
(mm) <i>Platanthera leucophaea</i> (Nutt.) Lindley	Prairie white-fringed orchid
[<i>Habenaria leucophea</i> (Nutt.) A. Gray]	
(nn) <i>Plantago cordata</i> Lam.	Heart-leaved plantain
(oo) <i>Poa canbyi</i> (Scribner) Piper	Canby's bluegrass
(pp) <i>Populus heterophylla</i> L.	Swamp or Black cottonwood
(qq) <i>Proserpinaca pectinata</i> Lam.	Mermaid-weed
(rr) <i>Rhynchospora globularis</i> (Chapman) Small	Globe beak-rush
(ss) <i>Rubus acaulis</i> Michaux	Dwarf raspberry
(tt) <i>Rumex occidentalis</i> S. Wats	Western dock
(uu) <i>Scleria pauciflora</i> Willd.	Few-flowered nut rush
(vv) <i>Subularia aquatica</i> L.	Awlwort
(ww) <i>Trillium undulatum</i> Willd.	Painted trillium
(xx) <i>Utricularia inflata</i> Walter [<i>U. radiata</i> Small]	Floating bladderwort
(yy) <i>Vaccinium vitis-idaea</i> L.	Mountain cranberry

(2) The following species of plants, listed by major group and family, are included on the state list of threatened species:

(a) PTERIDOPHYTES:

(i) ASPLENIACEAE (Spleenwort Family):

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|--|------------------|
| (A) <i>Asplenium rhizophyllum</i> L.
[<i>Camptosorus rhizophyllus</i> (L.) Link] | Walking fern |
| (B) <i>A. trichomanes-ramosum</i> L. [<i>A. viride</i> Hudson] | Green spleenwort |

(ii) DRYOPTERIDACEAE (Wood Fern Family):

- | | |
|--|---------------------|
| (A) <i>Dryopteris celsa</i> (W. Palmer) Small | Small log fern |
| (B) <i>Gymnocarpium robertianum</i> (Hoffman) Newman | Limestone oak fern |
| (C) <i>Woodsia alpina</i> (Bolton) S. F. Gray | Northern woodsia |
| (D) <i>W. obtusa</i> (Sprengel) Torrey | Blunt-lobed woodsia |

(iii) LYCOPODIACEAE (Clubmoss family):

- | | |
|---|----------|
| <i>Lycopodiella margaritae</i>
J. G. Bruce, W. H. Wagner, & Beitel | Clubmoss |
|---|----------|

- (iv) OPHIOGLOSSACEAE (Adder's-tongue family):
- (A) *Botrychium campestre* W. H. Wagner Prairie Moonwort or Dunewort
 - (B) *B. hesperium* (Maxon & Clausen) W. H. Wagner & Lellinger Western moonwort
 - (C) *B. mormo* W. H. Wagner Goblin moonwort
 - (D) *Ophioglossum vulgatum* L. [O. pycnostichum (Fern.) Löve & Löve] Southeastern adder's-tongue
- (v) PTERIDACEAE (Maidenhair Fern Family)
- Pellaea atropurpurea* (L.) Link. Purple cliff brake
- (b) MONOCOTYLEDONS:
- (i) ALISMATACEAE (Water-plantain family):
- Sagittaria montevidensis* Cham. & Schlecht. Arrowhead
- (ii) CYPERACEAE (Sedge family):
- (A) *Carex albolutescens* Schw. Sedge
 - (B) *C. assiniboinensis* W. Boott Assiniboia sedge
 - (C) *C. atratiformis* Britton Sedge
 - (D) *C. conjuncta* F. Boott. Sedge
 - (E) *C. crus-corvi* Kunze Raven's-foot sedge
 - (F) *C. lupuliformis* Dewey False hop sedge
 - (G) *C. media* R. Br. Sedge
 - (H) *C. novae-angliae* Schwein. New England sedge
 - (I) *C. oligocarpa* Willd. Eastern few-fruited sedge
 - (J) *C. platyphylla* Carey Broad-leaved sedge
 - (K) *C. rossii* Boott Ross's sedge
 - (L) *C. scirpoidea* Michaux Bulrush sedge
 - (M) *C. seorsa* Howe Sedge
 - (N) *C. typhina* Michaux Cattail sedge
 - (O) *C. wiegandii* Mackenzie Wiegand's sedge
 - (P) *Eleocharis geniculata* (L.) R & S. [E. caribaea (Rottb.) S. F. Blake] Spike rush
 - (Q) *E. compressa* Sulliv. Flattened spike rush
 - (R) *E. parvula* (R. & S.) Link. Dwarf spike rush
 - (S) *E. tricostata* Torrey Three-ribbed spike rush
 - (T) *Fuirena squarrosa* Michaux Umbrella grass
 - (U) *Psilocarya scirpoides* Torrey Bald rush
 - (V) *Scirpus hallii* A. Gray Hall's bulrush
 - (W) *S. americanus* Pers. [S. olneyi A. Gray] Olney's bulrush
 - (X) *Scleria reticularis* Michaux Netted nut rush
- (iii) IRIDACEAE (Iris family):
- (A) *Iris lacustris* Nutt. Dwarf lake iris
 - (B) *Sisyrinchium atlanticum* Bickn. Atlantic blue-eyed-grass
- (iv) JUNCACEAE (Rush family):
- (A) *Juncus brachycarpus* Engelm. Short-fruited rush
 - (B) *J. militaris* Bigelow Bayonet rush
 - (C) *J. scirpoides* Lam. Scirpus-like rush
 - (D) *J. stygius* L. Moor rush
 - (E) *J. vaseyi* Engelm. Vasey's rush
 - (F) *Luzula parviflora* (Ehrh.) Desv. Small-flowered wood rush

- (v) LEMNACEAE (Duckweed family):
Wolffia papulifera Thompson [*W. brasiliensis* Weddell] Watermeal
- (vi) LILIACEAE (Lily family):
- | | |
|---|----------------------|
| (A) <i>Allium schoenoprasum</i> L. (native variety) | Chives |
| (B) <i>Camassia scilloides</i> (Raf.) Cory | Wild hyacinth |
| (C) <i>Disporum trachycarpum</i> (Wats) B. & H. | Northern fairy bells |
| (D) <i>Tofieldia pusilla</i> (Michaux) Pers. | False asphodel |
| (E) <i>Trillium nivale</i> Riddell | Snow trillium |
| (F) <i>T. recurvatum</i> Beck | Prairie trillium |
| (G) <i>T. sessile</i> L. | Toadshade |
- (vii) ORCHIDACEAE (Orchid family):
- | | |
|--|---------------------------------------|
| (A) <i>Calypso bulbosa</i> (L.) Oakes | Calypso or fairy-slipper |
| (B) <i>Cypripedium candidum</i> Willd. | White lady slipper |
| (C) <i>Galearis spectabilis</i> (L.) Raf. | Showy orchis |
| (D) <i>Isotria verticillata</i> (Willd.) Raf. | Whorled pogonia |
| (E) <i>Platanthera ciliaris</i> (L.) Lindley
[<i>Habenaria ciliaris</i> (L.) R. Br.] | Orange- or yellow-fringed orchis |
| (F) <i>Spiranthes ovalis</i> Lindley | Lesser ladies'-tresses |
| (G) <i>Tipularia discolor</i> (Pursh) Nutt. | Crane-fly orchid |
| (H) <i>Triphora trianthophora</i> (Sw.) Rydb. | Nodding pogonia or three birds orchid |
- (viii) POACEAE (Grass family):
- | | |
|---|-------------------------|
| (A) <i>Aristida longespica</i> Poir. | Three-awned grass |
| (B) <i>A. tuberosa</i> Nutt. | Beach three-awned grass |
| (C) <i>Beckmannia syzigachne</i> (Steudel) Fern. | Slough grass |
| (D) <i>Bouteloua curtipendula</i> (Michaux) | Torrey Side oats grama |
| (E) <i>Bromus pumpellianus</i> Scribner | Pumpelly's brome grass |
| (F) <i>Calamagrostis lacustris</i> (Kearney) Nash | Northern reedgrass |
| (G) <i>C. stricta</i> (Timm) Koeler | Narrow-leaved reedgrass |
| (H) <i>Chasmanthium latifolium</i> (Michx.) Yates
[<i>Uniola latifolia</i> Michaux] | Wild oats |
| (I) <i>Diarrhena americana</i> Beauv. | Beak grass |
| (J) <i>Festuca scabrella</i> Torrey [F. <i>altaica</i> Trin.] | Rough fescue |
| (K) <i>Muhlenbergia richardsonis</i> (Trin.) Rydb. | Mat muhly |
| (L) <i>Oryzopsis canadensis</i> (Poir.) Torrey | Canada rice grass |
| (M) <i>Panicum leibergii</i> (Vasey) Scribner | Leiberg's panic grass |
| (N) <i>P. longifolium</i> Torrey | Panic grass |
| (O) <i>P. verrucosum</i> Muhl. | Warty panic grass |
| (P) <i>Poa alpina</i> L. | Alpine bluegrass |
| (Q) <i>P. paludigena</i> Fern. & Wieg. | Bog bluegrass |
| (R) <i>Zizania aquatica</i> var. <i>aquatica</i> L. | Wild rice |
- (ix) POTAMOGETONACEAE (Pondweed family):
- | | |
|--|----------------------|
| (A) <i>Potamogeton bicupulatus</i> Fern.
[<i>P. capillaceus</i> Poir.] | Waterthread pondweed |
| (B) <i>P. hillii</i> Morong | Hill's pondweed |
| (C) <i>P. pulcher</i> Tuckerman | Spotted pondweed |
| (D) <i>P. vaseyi</i> Robins | Vasey's pondweed |
- (x) RUPPIACEAE (Widgeon grass family):
- | | |
|---------------------------|---------------|
| <i>Ruppia maritima</i> L. | Widgeon grass |
|---------------------------|---------------|

(c) DICOTYLEDONS:

(i) ACANTHACEAE (Acanthus family):

- | | |
|---|---------------------|
| (A) <i>Justicia americana</i> (L.) Vahl | Water willow |
| (B) <i>Ruellia humilis</i> Nutt. | Hairy wild petunia |
| (C) <i>R. strepens</i> L. | Smooth wild petunia |

(ii) APIACEAE (Parsley family):

- | | |
|--|--|
| (A) <i>Berula erecta</i> (Nutt.) Fern.
[<i>B. pusilla</i> (Nutt.) Fern.] | Cut-leaved water parsnip |
| (B) <i>Eryngium yuccifolium</i> Michaux | Rattlesnake-master or button snakeroot |
| (C) <i>Osmorhiza depauperata</i> Phil. | Sweet Cicely |
| (D) <i>Zizia aptera</i> (A. Gray) Fern. | Prairie golden alexanders |

(iii) ARALIACEAE (Ginseng family):

- | | |
|--|--------------|
| (A) <i>Oplopanax horridus</i> (Smith) Miq. | Devil's club |
| (B) <i>Panax quinquefolius</i> L. | Ginseng |

(iv) ARISTOLOCHIACEAE (Birthwort family):

- | | |
|------------------------------------|--------------------|
| <i>Aristolochia serpentaria</i> L. | Virginia snakeroot |
|------------------------------------|--------------------|

(v) ASCLEPIADACEAE (Milkweed family):

- | | |
|---|----------------------|
| (A) <i>Asclepias hirtella</i> (Pennell) Woodson | Tall green milkweed |
| (B) <i>A. sullivantii</i> Engelm. | Sullivant's milkweed |

(vi) ASTERACEAE (Composite family):

- | | |
|--|-----------------------------|
| (A) <i>Agoseris glauca</i> (Pursh) Raf. | Prairie or pale agoseris |
| (B) <i>Antennaria rosea</i> Greene | Rosy pussytoes |
| (C) <i>Artemisia ludoviciana</i> Nutt. | Western mugwort |
| (D) <i>Aster furcatus</i> Burgess | Forked aster |
| (E) <i>A. modestus</i> Lindley | Great northern aster |
| (F) <i>A. sericeus</i> Vent. | Western silvery aster |
| (G) <i>Cirsium pitcheri</i> (Eaton) Torrey & A. Gray | Pitcher's thistle |
| (H) <i>Coreopsis palmata</i> Nutt. | Prairie coreopsis |
| (I) <i>Erigeron hyssopifolius</i> Michaux | Hyssop-leaved fleabane |
| (J) <i>Eupatorium fistulosum</i> Barratt | Hollow-stemmed Joe-pye weed |
| (K) <i>E. sessilifolium</i> L. | Upland boneset |
| (L) <i>Gnaphalium sylvaticum</i> L. | Woodland everlasting |
| (M) <i>Helianthus mollis</i> Lam. | Downy sunflower |
| (N) <i>Lactuca floridana</i> (L.) Gaertner | Woodland lettuce |
| (O) <i>L. pulchella</i> (Pursh) DC. | Wild blue lettuce |
| (P) <i>Petasites sagittatus</i> (Pursh) A. Gray | Sweet coltsfoot |
| (Q) <i>Polymnia uvedalia</i> L. | Yellow-flowered leafcup |
| (R) <i>Senecio indecorus</i> Greene | Northern ragwort |
| (S) <i>Silphium integrifolium</i> Michaux | Rosinweed |
| (T) <i>S. laciniatum</i> L. | Compass plant |
| (U) <i>S. perfoliatum</i> L. | Cup plant |
| (V) <i>Solidago houghtonii</i> A. Gray | Houghton's goldenrod |
| (W) <i>S. missouriensis</i> Nutt. | Missouri goldenrod |
| (X) <i>Tanacetum huronense</i> Nutt. | Lake Huron tansy |

(vii) BORAGINACEAE (Borage family):

- | | |
|---------------------------------------|--------------------|
| <i>Mertensia virginica</i> Pers. (L.) | Virginia bluebells |
|---------------------------------------|--------------------|

- (viii) BRASSICACEAE (Mustard family):
- (A) *Arabis perstellata* E. L. Braun Rock cress
 - (B) *Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates Lake cress
[*A. aquatica* (Eaton Wiegand)]
 - (C) *Braya humilis* (C. A. Meyer) Robinson Low northern rock cress
 - (D) *Dentaria maxima* Nutt. Large toothwort
 - (F) *Draba cana* Rydb. Ashy whitlow grass
 - (G) *D. incana* L. Twisted whitlow grass
 - (H) *D. reptans* (Lam.) Fern. Creeping whitlow grass
- (ix) CALLITRICHACEAE (Water-starwort family):
- Callitriche heterophylla* Pursh Large water starwort
- (x) CAPRIFOLIACEAE (Honeysuckle family):
- (A) *Lonicera involucrata* (Richardson) Banks Black twinberry
 - (B) *Viburnum edule* (Michx.) Raf. Squashberry or mooseberry
- (xi) CARYOPHYLLACEAE (Pink family):
- (A) *Arenaria macrophylla* Hooker Large-leaved sandwort
 - (B) *Sagina nodosa* (L.) Fenzl Pearlwort
 - (C) *Silene stellata* (L.) Aiton f. Starry campion
 - (D) *S. virginica* L. Fire pink
 - (E) *Stellaria crassifolia* Ehrh. Fleshy stitchwort
- (xii) CISTACEAE (Rockrose family):
- Lechea pulchella* Raf. Leggett's pinweed
[*L. leggettii* Britton & Hollick]
- (xiii) CONVOLVULACEAE (Morning-glory family):
- Ipomoea pandurata* (L.) G. F. W. Meyer Wild potato vine or man-of-the-earth
- (xiv) EMPETRACEAE (Crowberry family):
- Empetrum nigrum* L. Black crowberry
- (xv) ERICACEAE (Heath family):
- (A) *Pterospora andromedea* Nutt. Pine-drops
 - (B) *Vaccinium cespitosum* Michaux Dwarf bilberry
 - (C) *V. uliginosum* L. Alpine blueberry
- (xvi) EUPHORBIACEAE (Spurge family):
- Euphorbia commutata* Engelm. Tinted spurge
- (xvii) FABACEAE (Pea family):
- (A) *Astragalus canadensis* L. Canadian milk vetch
 - (B) *Wisteria frutescens* (L.) Poiret Wisteria
- (xviii) FUMARIACEAE (Fumitory family):
- Corydalis flavula* (Raf.) DC. Yellow fumewort
- (xix) GENTIANACEAE (Gentian family):
- (A) *Bartonia paniculata* (Michaux) Muhl. Panicked screwstem
 - (A) *Gentiana linearis* Froel. Narrow-leaved gentian
 - (B) *Gentianella quinquefolia* (L.) Small Stiff gentian
 - (C) *Sabatia angularis* (L.) Pursh Rosepink

(xx) HALORAGACEAE (Water-milfoil family): Myriophyllum farwellii Morong	Farwell's water milfoil
(xxi) HYDROPHYLLACEAE (Waterleaf family): Phacelia franklinii (R. Br.) A. Gray	Franklin's phacelia
(xxii) HYPERICACEAE (St. John's-wort family): Hypericum sphaerocarpum Michaux	Round-fruited St. John's-wort
(xxiii) LAMIACEAE (Mint family):	
(A) Lycopus virginicus L.	Virginia water-horehound
(B) Pycnanthemum muticum (Michx.) Pers.	Mountain mint
(C) P. pilosum Nutt.	Hairy mountain mint
(D) Scutellaria nervosa Pursh	Skullcap
(E) S. parvula Michaux [sensu lato]	Small skullcap
(F) Trichostema brachiatum L. [Isanthus brachiatus (L.) BSP.]	False pennyroyal
(G) T. dichotomum L.	Bastard pennyroyal
(xxiv) LENTIBULARIACEAE (Bladderwort family): Utricularia subulata L.	Bladderwort
(xxv) LINACEAE (Flax family): Linum virginianum L.	Virginia flax
(xxvi) MELASTOMATAACEAE (Melastome family): Rhexia mariana L.	Maryland meadow beauty
(xxvii) MORACEAE (Mulberry Family): Morus rubra L.	Red mulberry
(xxviii) NYMPHAEACEAE (Water-lily family): Nelumbo lutea (Willd.) Pers. [N. pentapetala (Walter) Fern.]	American lotus
(xxix) OLEACEAE (Olive family): Fraxinus profunda (Bush) Bush [F. tomentosa F. Michaux]	Pumpkin ash
(xxx) ONAGRACEAE (Evening-primrose family): Ludwigia sphaerocarpa Ell.	Globe-fruited seedbox
(xxxi) OROBANCHACEAE (Broom-rape family): Orobanche fasciculata Nutt.	Broomrape
(xxxii) OXALIDACEAE (Wood-sorrel family): Oxalis violacea L.	Violet wood sorrel
(xxxiii) POLEMONIACEAE (Phlox family):	
(A) Phlox bifida Beck.	Cleft phlox
(B) P. maculata L.	Wild sweet William
(C) Polemonium reptans L.	Jacob's ladder
(xxxiv) POLYGONACEAE (Smartweed family):	

(A) <i>Polygonum careyi</i> Olney	Carey's smartweed
(B) <i>P. viviparum</i> L.	Alpine bistort
(xxxv) RANUNCULACEAE (Crowfoot family):	
(A) <i>Hydrastis canadensis</i> L.	Goldenseal
(B) <i>Ranunculus ambigens</i> Watson	Spearwort
(C) <i>R. cymbalaria</i> Pursh	Seaside crowfoot
(D) <i>R. lapponicus</i> L.	Lapland buttercup
(E) <i>R. macounii</i> Britton	Macoun's buttercup
(F) <i>R. rhomboideus</i> Goldie	Prairie buttercup
(xxxvi) RHAMNACEAE (Buckthorn family):	
<i>Ceanothus sanguineus</i> Pursh	Wild lilac
(xxxvii) RUBIACEAE (Madder family):	
<i>Galium kamschaticum</i> Schultes & J. H. Schultes	Bedstraw
(xxxviii) ROSACEAE (Rose family):	
(A) <i>Dalibarda repens</i> L.	False violet
(B) <i>Filipendula rubra</i> (Hill) Robinson	Queen-of-the-prairie
(C) <i>Geum triflorum</i> Pursh	Prairie smoke
(D) <i>Porteranthus trifolius</i> (L.) Britton [<i>Gillenia trifoliata</i> (L.) Moench.]	Bowman's root
(E) <i>Potentilla paradoxa</i> Nutt.	Sand cinquefoil
(F) <i>P. pennsylvanica</i> L.	Prairie cinquefoil
(G) <i>Sanguisorba canadensis</i> L.	Canadian burnet
(xxix) SALICACEAE (Willow family):	
<i>Salix planifolia</i> Pursh	Tea-leaved willow
(xl) SARRACENIACEAE (Pitcher-plant family):	
<i>Sarracenia purpurea</i> f. <i>heterophylla</i> (Eaton) Fern.	Yellow pitcher plant
(xli) SAXIFRAGACEAE (Saxifrage family):	
(A) <i>Parnassia palustris</i> L.	Marsh grass-of-parnassus
(B) <i>Saxifraga paniculata</i> Miller [<i>S. aizoon</i> Jacq.]	Encrusted saxifrage
(C) <i>S. tricuspidata</i> Rottb.	Prickly saxifrage
(xliii) SCROPHULARIACEAE (Figwort family):	
(A) <i>Besseyia bullii</i> (Eaton) Rydb.	Kitten-tails
(B) <i>Castilleja septentrionalis</i> Lindley	Pale Indian paintbrush
(C) <i>Collinsia parviflora</i> Lindley	Small blue-eyed Mary
(D) <i>Dasystema macrophylla</i> (Nutt.) Raf.	Mullein foxglove
(E) <i>Euphrasia hudsoniana</i> Fernald & Weigand	Eyebright
(F) <i>E. nemorosa</i> (Pers.) Wallr.	Eyebright
(G) <i>Gratiola aurea</i> Pursh [<i>G. lutea</i> Raf.]	Hedge-hyssop
(H) <i>G. virginiana</i> L.	Annual hedge hyssop
(I) <i>Penstemon calycosus</i> Small	Beard tongue
(xliii) VALERIANACEAE (Valerian family):	
(A) <i>Valeriana edulis</i> var. <i>ciliata</i> (T. & G.) Cronquest	Edible valerian
(B) <i>Valerianella chenopodiifolia</i> (Pursh) DC.	Goosefoot corn salad
(C) <i>V. umbilicata</i> (Sull.) A. W. Wood	Corn salad

(xliv) VIOLACEAE (Violet family):

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|-----------------------------------|-------------------------|
| (A) <i>Viola epipsila</i> Ledeb. | Northern marsh violet |
| (B) <i>V. novae-angliae</i> House | New England violet |
| (C) <i>V. pedatifida</i> G. Don | Prairie birdfoot violet |

(xlv) VITACEAE (Grape family)

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|-------------------------|-------------|
| <i>Vitis vulpina</i> L. | Frost grape |
|-------------------------|-------------|

(3) This rule does not apply to cultivated plants.

(4) The following species of plants are thought to be extirpated in Michigan, but, if rediscovered, will automatically be listed as threatened:

- | | |
|--|------------------------------------|
| (a) <i>Agropyron spicatum</i> (Pursh) Scribner & J.G. Smith | Bluebunch wheatgrass |
| (b) <i>Aristida dichotoma</i> Michaux | Three-awned grass |
| (c) <i>Asplenium montanum</i> Willd. | Mountain spleenwort |
| (d) <i>Buchnera americana</i> L. | Bluehearts |
| (e) <i>Carex decomposita</i> Muhl. | Log sedge |
| (f) <i>C. gravida</i> Bailey | Sedge |
| (g) <i>C. haydenii</i> Dewey | Hayden's sedge |
| (h) <i>Commelina erecta</i> L. | Slender dayflower |
| (i) <i>Cyperus acuminatus</i> Torrey & Hooker | Nut grass |
| (j) <i>Dalea purpurea</i> Vent.
[<i>Petalostemon purpurem</i> (Vent.) Rydb.] | purple prairie clover |
| (k) <i>Dennstaedtia punctiloba</i> (Michx.) T. Moore | Hay-scented fern |
| (l) <i>Digitaria filiformis</i> (L.) Koeler | Slender finger grass |
| (m) <i>Disporum maculatum</i> (Buckley) Britton | Nodding madarin |
| (n) <i>Draba nemorosa</i> L. | Whitlow grass |
| (o) <i>Eleocharis radicans</i> (Poirot) Kunth | Spike rush |
| (p) <i>Echinacea purpurea</i> (L.) Moench. | Purple coneflower |
| (q) <i>Equisetum telmateia</i> Ehrh. | Giant horsetail |
| (r) <i>Fimbristylis puberula</i> (Michaux) Vahl | Chestnut sedge |
| (s) <i>Gentiana saponaria</i> L. | Soapwort gentian |
| (t) <i>Glyceria acutiflora</i> Torrey | Manna grass |
| (u) <i>Hedyotis nigricans</i> (Lam.) Fosb. | Hedyotis |
| (v) <i>Helianthus microcephalus</i> Torrey & Gray | Small wood sunflower |
| (w) <i>Lemna valdiviana</i> Phil. | Pale duckweed |
| (x) <i>Lespedeza procumbens</i> Michaux | Trailing bush clover |
| (y) <i>Liatris punctata</i> Hooker | Dotted blazing star |
| (z) <i>L. squarrosa</i> (L.) Michx. | Plains blazing star |
| (aa) <i>Lithospermum incisum</i> Lehm. | Narrow-leaved puccoon |
| (bb) <i>Mikania scandens</i> (L.) Willd. | Mikania |
| (cc) <i>Mimulus alatus</i> Aiton | Winged monkey flower |
| (dd) <i>Monarda didyma</i> L. | Bee balm, Oswego tea |
| (ee) <i>Muhlenbergia cuspidata</i> (Hooker) Rydb. | Plains muhly |
| (ff) <i>Onosmodium molle</i> Michx. | Marbleweed |
| (gg) <i>Phleum alpinum</i> L. | Mountain timothy |
| (hh) <i>Polygala incarnata</i> L. | Pink milkwort |
| (ii) <i>Polygonatum biflorum</i> var. <i>melleum</i> (Farw.) | Ownbey Honey-flowered solomon seal |
| (jj) <i>Polytaenia nuttallii</i> DC. | Prairie parsley |
| (kk) <i>Rudbeckia subtomentosa</i> Pursh | Sweet coneflower |
| (ll) <i>Scutellaria incana</i> Biehler | Skullcap |
| (mm) <i>S. ovata</i> Hill | Forest skullcap |
| (nn) <i>Senecio congestus</i> (R. Br.) DC. | Marsh fleabane |

(oo) <i>Sisyrinchium farwellii</i> Bickn.	Farwell's blue-eyed grass
(pp) <i>S. hastile</i> Bickn.	Blue-eyed grass
(qq) <i>Tomanthera auriculata</i> (Michaux) Raf. [<i>Agalinas auriculata</i> (Michaux) S. F. Blake]	Eared foxglove
(rr) <i>Tradescantia bracteata</i> Small.	Long-bracted spiderwort
(ss) <i>Trillium viride</i> Beck	Green trillium
(tt) <i>Woodwardia areolata</i> (L.) T. Moore	Netted chain fern

APPENDIX D
LOCATIONS OF DOUBLE-CRESTED CORMORANT BREEDING COLONIES
ON PUBLIC LANDS IN THE STATE OF MICHIGAN
 (USDI/USGS 2001, Wires et. al. 2001)

<u>Colony Site Name</u>	<u>Nearest City/Town</u>
Crow Island	Cedarville, MI
East Grape Island	St. James, MI
Gull Island LM	St. James, MI
Hat Island	St. James, MI
Huron Island	Huron Mountain, MI
IR Amygdaloid Island	Silver Islet, ON
IR Gull 2	Silver Islet, ON
IR Net Island	Silver Islet, ON
IR North Rock	Crooks, ON
IR Paul Island Rocks	Crooks, ON
IR Steamboat Island	Silver Islet, ON
Little Charity Island	Au Gres, MI
Morazan	Glen Arbor, MI
Naubinway Island	Naubinway, MI
Pismire Island	St. James, MI
Scarecrow Island	Ossineke, MI
Snake Island BD Noc	Cheboygan, MI
St. Martin's Shoal	Hessel, MI
West Grape Island	St. James, MI

APPENDIX E
USFWS FINAL RULING AND RECORD OF DECISION ON
DOUBLE-CRESTED CORMORANT MANAGEMENT

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 21

RIN 1018-AI39

Migratory Bird Permits; Regulations for Double-Crested Cormorant Management

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule and notice of record of decision.

SUMMARY: Increasing populations of the double-crested cormorant have caused biological and socioeconomic resource conflicts. In November 2001, the U.S. Fish and Wildlife Service (Service or we) completed a Draft Environmental Impact Statement (DEIS) on double-crested cormorant management. In March 2003, a proposed rule was published to establish regulations to implement the DEIS proposed action, Alternative D. In August 2003, the notice of availability for a Final Environmental Impact Statement (FEIS) was published, followed by a 30-day comment period. This final rule sets forth regulations for implementing the FEIS preferred alternative, Alternative D (establishment of a public resource depredation order and revision of the aquaculture depredation order). It also provides responses to comments we received during the 60-day public comment period on the proposed rule. The Record of Decision (ROD) is also published here.

DATES: This final rule will go into effect on [insert date 30 days following date of publication in the Federal Register].

ADDRESSES: Comments can be mailed to the Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, MBSP-4107, Arlington, Virginia 22203; or emailed to cormorants@fws.gov; or faxed to 703/358-2272.

FOR FURTHER INFORMATION CONTACT: Brian Millsap, Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service (see ADDRESSES).

SUPPLEMENTARY INFORMATION:

Background

The Service is the Federal agency with primary responsibility for managing migratory birds. Our authority is based on the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.), which implements conventions with Great Britain (for Canada), Mexico, Japan, and Russia. The double-crested cormorant (DCCO) is Federally protected under the 1972 amendment to the Convention for the Protection of Migratory Birds and Game Mammals, February 7, 1936, United States–Mexico, as amended, 50 Stat. 1311, T.S. No. 912. The take of DCCOs is strictly prohibited except as authorized by regulations implementing the MBTA.

As we stated in the proposed rule published in the Federal Register in March 2003, the authority for the regulations set forth in this rule is the MBTA. The MBTA authorizes the Secretary, subject to the provisions of, and in order to carry out the purposes of, the applicable conventions, to determine when, if at all, and by what means it is compatible with the terms of the conventions to allow the killing of migratory birds. DCCOs are covered under the terms of the Convention for the Protection of Migratory Birds and Game Mammals with Mexico. The DCCO is a nongame, noninsectivorous bird for which the applicable treaty does not impose specific prohibitions or

Michigan Cormorant Environmental Assessment

requirements other than the overall purpose of protection so as not to be exterminated and to permit rational utilization for sport, food, commerce, and industry. In the FEIS for this action, the Service has considered all of the statutory factors as well as compatibility with the provisions of the convention with Mexico. The Russian convention (Convention between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment, concluded November 19, 1976) provides an authority to cover DCCOs even though not listed in the Appendix. To the extent we choose to apply the convention, it contains an exception from the prohibitions that may be made for the protection against injury to persons or property. We note, therefore, that there is no conflict between our responsibility for managing migratory birds and our selected action.

Regulations governing the issuance of permits for migratory birds are contained in title 50, Code of Federal Regulations, parts 13 and 21. Regulations in subpart D of part 21 deal specifically with the control of depredating birds. Section 21.41 outlines procedures for issuing depredation permits. Sections 21.43 through 21.47 deal with special depredation orders for migratory birds to address particular problems in specific geographical areas. Section 21.47 addresses DCCOs at aquaculture facilities.

While the Service has the primary responsibility for regulating DCCO management, on-the-ground management activities are largely carried out by entities such as State fish and wildlife agencies, the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS/WS), and, in some cases, by private citizens. APHIS/WS was a cooperating agency in the development of the DEIS and FEIS. Additionally, States and Canadian provinces were involved through the International Association of Fish and Wildlife Agencies.

On March 17, 2003 we published a proposed rule in the Federal Register (68 FR 12653). We solicited comments on the proposed rule until May 16, 2003. During that time, we received approximately 9,700 letters, emails, and faxes. About 85 percent of these comments were opposed to the proposed action, the vast majority of which were driven by mass email/letter campaigns promoted by nongovernmental organizations.

This final rule reflects consideration of comments received on the proposed rule. The final rule promulgates regulations to implement the selected action described in the FEIS. We published the notice of availability for the FEIS in the Federal Register on August 11, 2003 (68 FR 47603). Copies of the FEIS may be obtained by writing us (see ADDRESSES) or by downloading it from our website at <http://migratorybirds.fws.gov/issues/cormorant/cormorant.html>. The Wires et al. report "Status of the double-crested cormorant in North America," mentioned in a Federal Register notice of November 8, 1999 (64 FR 60828), may also be downloaded at <http://migratorybirds.fws.gov/issues/cormorant/status.pdf>.

The FEIS examined six management alternatives for addressing conflicts with DCCOs: (A) No Action, (B) Nonlethal Control, (C) Increased Local Damage Control, (D) Public Resource Depredation Order, (E) Regional Population Reduction, and (F) Regulated Hunting. The selected action in the FEIS is Alternative D, Public Resource Depredation Order. This alternative is intended to enhance the ability of resource agencies to deal with immediate, localized DCCO damages by giving them more management flexibility.

To address DCCO populations from a broader and more coordinated perspective, a population objectives approach will likely need to be considered over the long term. In the future, if supported by biological evidence and appropriate monitoring resources, the Service may authorize management that focuses on setting and achieving regional population goals. At that time, a cormorant management plan will be developed. Until then, our strategy will continue to focus on alleviating localized damages.

We acknowledge that there is a need for more information about DCCOs and their impacts on resources across a variety of ecological settings. We also recognize that more rigorous monitoring efforts would be helpful in thoroughly assessing the impacts of the selected action on DCCO populations. While DCCO populations are currently tracked by a number of regional and national surveys, the Service concurs with many reviewers of the proposed rule, and recognizes that better information on population status and trends is desirable. For this reason, consistent with program, Service, and Department goals and priorities and subject to available funds, the Service intends to use all reasonable means to implement an improved DCCO population monitoring program of sufficient

rigor to detect meaningful population changes subsequent to implementation of this action. The Service's objective will be to use available resources to collect data that can be used to reassess the population status of DCCOs by 2009, in advance of a decision whether or not to extend the depredation orders. This assessment may involve a Service-sponsored technical workshop, with various agency and non-governmental representatives, to discuss optimum survey methodologies. Also as part of that assessment, we will compile and evaluate available data on population trends of other species of birds that nest or roost communally with DCCOs to determine if negative impacts might be occurring to these species.

The Service has weighed these deficiencies against the costs of taking no action, and we believe it is prudent to move forward as outlined in this final rule. In making a decision about whether or not to extend the depredation orders, the Service will review and consider all additional research that has been conducted that evaluates the effects of the proposed action on fish stocks and other resources. The Service strongly encourages all stakeholders to assist in gathering the needed data through well-designed scientific research. Our expectation is that the annual reports in the depredation orders, especially the monitoring and evaluation data associated with the public resource depredation order, will provide substantive increases in scientific and management knowledge of DCCOs and their impacts. We urge States, Tribes, and Federal agencies involved in DCCO control to, wherever possible, design monitoring programs to provide useful information on the effects of DCCO control on public resources. We also urge all relevant governmental and nongovernmental entities to work together, whenever possible, to coordinate research and management activities at the local and regional scale. In particular, the following needs exist: greater demographic information (age-specific survival/mortality, age at first breeding, reproductive output, and philopatry) for use in modeling to help predict population responses to management scenarios; region-wide surveys of DCCOs to document changes in breeding populations; assessments of DCCO-caused fish mortality in relation to other mortality factors at the local level; studies to examine mechanisms within fish populations that may buffer the effects of DCCO predation, including investigation of whether different fish life-stages or species complexes are differentially affected by DCCOs; studies to quantify the impacts of DCCOs on vegetation and other waterbirds; studies to determine how DCCO population processes respond to changes in population density resulting from control activities; and studies to address human dimensions of DCCO conflicts and possible solutions through education and outreach.

The selected action establishes a public resource depredation order in 50 CFR 21.48 and amends 50 CFR 21.47, the aquaculture depredation order that was originally created in 1998. In the proposed rule, we presented draft regulations and opened a 60-day public comment period. Differences between this final rule and the proposed rule reflect both our attentiveness to public comments and our deference to agency expertise. The chart below highlights these changes.

Proposed rule	Final rule	Justification
ADO ¹ : Winter roost control authorized from October to March	Winter roost control authorized from October to April [21.47(c)(2)]	Public and agency comments indicate that DCCOs continue to congregate in large numbers in April and these birds have a major impact on adjacent aquaculture facilities
Both DOs ² : Statement that take of any species protected by the Endangered Species Act (ESA) is not authorized	Same, plus conservation measures added [21.47(d)(8); 21.48(d)(8)]	In accordance with Section 7 of the ESA, we completed informal consultation; this led to development of conservation measures to avoid adverse effects to any species protected by the ESA
Both DOs: General statement that authority under depredation orders can be revoked	Added specific suspension and revocation procedures [21.47(d)(10); 21.48(d)(13)]	For consistency's sake, we believe it is important to have a revocation/ suspension process outlined
Both DOs: OMB information collection control number not	Added OMB approval number of 1018-0121 and expiration date [21.47(e); 21.48(e)]	We received this number in May 2003, after publication of proposed rule and comment period

specified		
PRDO ³ : Recipients of donations of birds killed must have a scientific collecting permit	This requirement removed [21.48(d)(6)(i)]	The proposed rule would have been more stringent than what is currently allowed in 50 CFR 21.12(b) and we do not consider stricter rules necessary
PRDO: Agencies must provide a one-time notice of their intent to act under the order	Added an advance notification requirement for take of >10% of a breeding colony [21.48(d)(9)]	We wanted to address concerns about there being no opportunity for us to review, and even suspend, control actions before they take place
PRDO: Annual reporting period set at Sept. 1 to Aug. 31	Changed reporting period to Oct. 1 to Sept. 30 [21.48(d)(11)]	The State of New York requested this change to better accommodate fall harassment activities
PRDO: Monitoring requirements for population level activities	Changed the word “monitor” to “evaluate”; added requirement that data from this section be included in annual report; and removed (11)(iii) [21.48(d)(12)]	This section ensures that agencies will consider (and take action to avoid) impacts to nontarget species and will evaluate the effects of control actions at breeding colonies, without being cost-prohibitive

¹ Aquaculture Depredation Order

² Aquaculture and Public Resource Depredation Orders

³ Public Resource Depredation Order

Population Status of the Double-Crested Cormorant

The information in this section is derived from the FEIS (to obtain a copy, see ADDRESSES). DCCOs are native to North America and range widely there. There are essentially five different breeding populations, variously described by different authors as: Alaska, Pacific Coast, Interior, Atlantic, and Southern (Hatch and Weseloh 1999, Wires et al. 2001). The continental population is estimated at 2 million birds (including breeders and nonbreeders). For the United States as a whole, according to Breeding Bird Survey (BBS) data, the breeding population of DCCOs increased at a statistically significant rate of approximately 7.5 percent per year from 1975-2002 (Sauer et al. 2003). However, growth rates for the different breeding populations vary considerably from this average.

Atlantic. Approximately 23 percent of the DCCO breeding population is found in the Atlantic region (Tyson et al. 1999), which extends along the Atlantic coast from southern Newfoundland to New York City and Long Island (Wires et al. 2001). Atlantic DCCOs are migratory and occur with smaller numbers of great cormorants. From the early 1970s to the early 1990s, the Atlantic population increased from about 25,000 pairs to 96,000 pairs (Hatch 1995). While this population declined by 6.5 percent overall in the early to mid-1990s, some colonies were still increasing during this period. The most recent estimate of the Atlantic population is at least 85,510 breeding pairs (Tyson et al. 1999).

Interior. Nearly 70 percent of the DCCO breeding population is found in the Interior region (Tyson et al. 1999), which reaches across the prairie provinces of Canada, includes the Canadian and U.S. Great Lakes, and extends west of Minnesota to southwestern Idaho (Wires et al. 2001). Interior DCCOs are strongly migratory and, in the breeding months, are concentrated in the northern prairies, with the Canadian province of Manitoba hosting the largest number of breeding DCCOs in North America (Wires et al. 2001). Additionally, large numbers of Interior DCCOs nest on or around the Great Lakes (Hatch 1995, Wires et al. 2001). Since 1970, when 89 nests were counted during a severe pesticide-induced population decline (Weseloh et al. 1995), DCCO numbers have increased rapidly in the Great Lakes, with breeding surveys in 2000 estimating 115,000 nests there (Weseloh et al. 2002). From 1990 to 1997, the overall growth rate in the Interior region was estimated at 6 percent with the most dramatic increases occurring in Ontario, Michigan, and Wisconsin. The Interior population (including Canada) numbers is at least 256,212 breeding pairs (Tyson et al. 1999).

Southern. The Southern region includes Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas (Wires et al. 2001). Most DCCOs in this region are winter migrants from the Interior and Atlantic regions; the number of these wintering birds has increased

dramatically in recent years (Dolbeer 1991, Glahn and Stickley 1995, Jackson and Jackson 1995, Glahn et al. 2000). Surveys conducted by APHIS/WS biologists suggest that winter numbers in the delta region of Mississippi have increased by nearly 225 percent since the early 1990s (over 73,000 DCCOs were counted in the 2001-2002 winter surveys; G. Ellis, unpubl. data). Breeding DCCOs in this region are also on the rise, with some nesting occurrences representing first records and others recolonizations (Wires et al. 2001). Today, approximately 4 percent of the DCCO breeding population occurs in this region, numbering at least 13,604 breeding pairs (Tyson et al. 1999).

Pacific Coast and Alaska. Approximately 5-7 percent of North America's DCCOs are found in this population, which has approximately 27,500 nesting pairs (including Mexico) according to Carter et al. (1995b) or at least 17,084 pairs (not including Mexico) according to Tyson et al. (1999). Carter et al. (1995) documented recent increases in California and Oregon, and declines in British Columbia, Washington, and Baja California. Tyson et al. (1999) did not consider Mexican populations and calculated a decline for the entire West Coast-Alaska region. In the past 20 years, the largest increases in the region have taken place in the Columbia River Estuary, where East Sand Island supports the largest active colony along the coast with 6,390 pairs in 2000 (Carter et al. 1995b, Collis et al. 2000, Wires et al. 2001). Increases at East Sand Island coincided with declines in British Columbia, Washington, and locations in interior Oregon, and the rapid increase undoubtedly reflected some immigration from these other areas (Carter et al. 1995).

Impacts of Double-crested Cormorants on Public Resources

Fish. In order to fully understand fisheries impacts related to predation, DCCO diet must be evaluated in terms of the number of DCCOs in the area, the length of their residence in the area, and the size of the fish population of concern (Weseloh et al. 2002). While most, but not all, studies of cormorant diet have indicated that sport or other human-valued fish species do not make up high percentages of DCCO diet, conclusions about actual fisheries impacts cannot be based on diet studies alone. Nisbet (1995) referred to this as the "body-count" approach (i.e., counting the numbers of prey taken rather than examining the effects on prey populations) and noted that it is necessary to also "consider functional relationships between predation and output parameters." Stapanian (2002) observed that "Rigorous, quantitative studies suggest that the effects of cormorants on specific fisheries appear to be due in part to scale and stocks of available prey." Indeed, negative impacts are typically very site-specific and thus DCCO-fish conflicts are most likely to occur on a localized scale. Even early cormorant researcher H.F. Lewis recognized that cormorants could be a local problem at some fishing areas (Milton et al. 1995). In sum, the following statements about DCCO feeding habits and fisheries impacts can be concluded with confidence from the available science: (1) DCCOs are generalist predators whose diet varies considerably between seasons and locations and tends to reflect fish species composition; (2) The present composition of cormorant diet appears to have been strongly influenced by human-induced changes in the natural balance of fish stocks; (3) "Impact" can occur at different scales, such that ecological effects on fish populations are not necessarily the same as effects on recreational or commercial catches, or vice versa; (4) Cormorant impact is generally most significant in artificial, highly managed situations; and (5) Because environmental and other conditions vary locally, the degree of conflicts with cormorants will vary locally.

Research in New York's Oneida Lake and eastern Lake Ontario has examined data on DCCO diets and fish populations (walleye and yellow perch in Oneida Lake and smallmouth bass in Lake Ontario) and concluded that cormorant predation is likely a significant source of fish mortality that is negatively impacting recreational catch (Adams 1999, Rudstam 2000, Lantry et al. 1999). Based on these studies, the Service will allow the authorized agencies and Tribes acting under the public resource depredation order to determine whether a similar situation exists in their location, and undertake appropriate control actions to mitigate negative effects, if applicable.

Other Birds. Weseloh et al. (2002) observed that nesting DCCOs could impact other colonial waterbirds in at least three ways: by DCCO presence limiting nest site availability, by DCCOs directly taking over nest sites, or by falling guano and nesting material from DCCO nests leading to the abandonment of nests below. Habitat destruction is another concern reported by biologists (USFWS 2001). The significance of DCCO-related effects on other birds varies with scale. While large-scale impacts on regional or continental bird populations have not been documented (Cuthbert et al. 2002), there is evidence that species such as black-crowned night herons, common terns, and great egrets can be negatively impacted by DCCOs at a site-specific level (Jarvie et al. 1999, Shieldcastle and Martin

1999, USFWS 2001, Weseloh et al. 2002). Biologists from several States and provinces have reported or expressed concern about impacts to other bird species in relation to increased cormorant abundance (Wires et al. 2001, USFWS 2001). Some biologists have also expressed concern about incidental impacts to co-nesting species caused by DCCO control efforts (both lethal and nonlethal). We believe that such impacts are preventable and easily mitigated to a level of insignificance. For example, New York biologists conducting DCCO control work in eastern Lake Ontario have successfully managed to avoid negative impacts to other species such as Caspian terns, herring gulls, and ring-billed gulls (USFWS 2003).

Vegetation and Habitat. Cormorants destroy their nest trees by both chemical and physical means. Cormorant guano, or excrement, is highly acidic and kills ground vegetation and eventually the nest trees. In addition, cormorants damage vegetation by stripping leaves for nesting material and by breaking branches due to the combined weight of the birds and their nests. Vegetation and habitat destruction problems tend to be localized in nature. For example, resource professionals from the Great Lakes region are concerned about loss of plant diversity associated with increasing cormorant numbers at some breeding sites (Weseloh and Ewins 1994, Moore et al. 1995, Lemmon et al. 1994, Bédard et al. 1995, Shieldcastle and Martin 1999).

Aquaculture. Cormorant depredation at commercial aquaculture facilities, particularly those in the southern catfish-producing region, remains economically significant. DCCOs move extensively within the lower Mississippi valley during the winter months (Dolbeer 1990). In the delta region of Mississippi, cormorants have been found to forage relatively close to their night roosting locations with most birds traveling an average distance of less than 20 km from their night roosting locations to their day roosts (King et al. 1995). Cormorants that use day roosts within the catfish-producing regions of the delta typically forage at aquaculture facilities, and USDA researchers have found that as much as 75 percent of the diet of DCCOs in these areas consists of catfish (Glahn et al. 1999). Losses from cormorant predation on fingerling catfish in the delta region of Mississippi have been estimated at approximately 49 million fingerlings each winter, valued at \$5 million. Researchers have estimated the value of catfish at harvest to be about 5 times more than the replacement cost of fingerlings, placing the total value of catfish consumed by DCCOs at approximately \$25 million (Glahn et al. 2000). Total sales of catfish growers in Mississippi amounted to \$261 million in 2001 (USDA-NASS 2002).

Hatcheries. DCCO impacts to hatcheries are related to predation, stress, disease, and financial losses to both hatcheries and recipients of hatchery stock. Hatchery fish may be stressed by the presence of DCCOs, wounds caused by unsuccessful attacks, and noisemakers used to scare away DCCOs. This stress can lead to a decrease in growth factors as feeding intensity decreases. Additionally, disease and parasites can be spread more easily by the presence of fish-eating birds. State and Federal hatchery managers, particularly in the upper midwest (e.g., Wisconsin, Michigan) and the south (e.g., Arizona, Louisiana, Oklahoma, Texas), have reported significant depredation problems at hatcheries (USFWS 2001). Currently, Director's Order No. 27, "Issuance of Permits to Kill Depredating Migratory Birds at Fish Cultural Facilities," dictates that "kill permits [for fish-eating birds] will be issued for use at public facilities only when it has been demonstrated that an emergency or near emergency exists and an [APHIS/WS] official certifies that all other deterrence devices and management practices have failed." The two depredation orders that we are proposing would supersede this Director's Order (for DCCOs only) by giving managers at State, Federal, and Tribal fish hatcheries more authority to control DCCOs to protect fish stock.

Environmental Consequences of Action

We analyzed our action in the FEIS. Our environmental analysis indicates that the action will cause the estimated take of <160,000 DCCOs, which is not predicted to have a significant negative impact on regional or continental DCCO populations; will cause localized disturbances to other birds but these can be minimized by taking preventive measures, leading to the action having beneficial effects overall; will help reduce localized fishery and vegetation impacts; will not adversely affect any Federally listed species; is likely to help reduce localized water quality impacts; will help reduce depredation of aquaculture and hatchery stock; is not likely to significantly benefit recreational fishing economies or commercial fishing; may indirectly reduce property damages; and will have variable effects on existence and aesthetic values, depending on perspective.

References

A complete list of citation references is available upon request from the Division of Migratory Bird Management (see ADDRESSES).

Responses to Significant Comments

During the public comment period on the proposed rule, we received approximately 9,700 emails, letters, and faxes. We provide our responses to significant comments here.

Comment 1: The Service should protect, not kill, DCCOs.

Service Response: In the wildlife management field, the control of birds through the use of humane, but lethal, techniques can be an effective means of alleviating resource damages, preventing further damages, and/or enhancing nonlethal techniques. It would be unrealistic and overly restrictive to limit a resource manager's damage management methods to nonlethal techniques, even if "nonlethal" included nest destruction and/or egg oiling. Lethal control techniques are an important, and in many cases necessary, part of a resource manager's "tool box."

Comment 2: States and other agencies don't have sufficient resources to effectively control DCCOs.

Service Response: Agencies will need to decide whether or not cormorant management is a high enough priority for them to justify committing resources to it. We have tried to keep reporting and evaluation requirements such that they are unlikely to be cost prohibitive. We have also allowed agencies to designate "agents" to act under the orders. Our budget does not currently allow us to provide financial assistance to States and other agencies for cormorant control.

Comment 3: The Service needs to manage DCCOs through a coordinated, regional population objectives approach.

Service Response: The selected action, Alternative D, in no way precludes regional coordination or consideration of population objectives, despite being chiefly a localized damage control approach. We are keeping the option open of taking this approach in the future, given greater biological information and the necessary funding.

Comment 4: The Service needs to reduce overall DCCO populations.

Service Response: At this time, we believe that the evidence better supports Alternative D, a localized damage control strategy rather than Alternative E, a largescale population reduction strategy. While many stakeholders portray cormorant conflicts as being a simple overabundance problem whose solution is population reduction, that is not clearly the case. That is, it is unclear whether fewer cormorants would actually mean fewer problems (since sometimes distribution is as important as number in determining impacts), what the necessary scale of control would be, and whether or not that scale of control is biologically, socially, and economically feasible.

Comment 5: States should be granted full authority to control DCCOs as needed.

Service Response: Under the MBTA, we have the ultimate responsibility for cormorant management. While we can grant States and other agencies increased authority, giving them "full authority" without any limitations and requirements would abdicate our responsibilities.

Comment 6: The final rule should authorize the use of all effective DCCO control methods at aquaculture facilities.

Service Response: The final rule authorizes shooting, which is considered very effective, to be used at aquaculture facilities. There is no evidence of the need for other techniques to be used.

Comment 7: The Service needs to more fully address other causes of fish depletion.

Service Response: We recognize that factors other than DCCOs contribute to resource impacts such as fishery declines. However, an exhaustive and comprehensive analysis of these myriad factors is outside the scope of the

EIS. Our focus is chiefly on addressing conflicts caused by cormorants and then attempting to manage DCCOs, or the resources themselves, to alleviate those conflicts.

Comment 8: There should be a hunting season on DCCOs.

Service Response: While we recognize the validity of hunting as a wildlife management tool, we believe that the risks associated with it outweigh any potential benefits. We are gravely concerned about the negative public perception that would arise from authorizing hunting of a bird with little consumptive (or “table”) value. While it is true that this has been done in the past for other species (e.g., crows), public attitudes are different today than they were 30 years ago when those decisions were made. Additionally, a number of hunters commented that they did not support hunting as a means of cormorant control. Therefore, it is our position that hunting is not, on the whole, a suitable technique for reducing cormorant damages.

Comment 9: The Service should add Montana and New Hampshire to the public resource depredation order.

Service Response: We determined that the most crucial States to include in the public resource depredation order were those States with DCCOs from the increasing Interior and Southern populations or States affected by those populations (e.g., those with high numbers of migrating birds). Other States with cormorant conflicts are not precluded from cormorant control but would have to obtain depredation permits.

Comment 10: The Service should remove DCCOs from MBTA protection.

Service Response: In our view, this is not a “reasonable alternative.” DCCOs have been protected under the MBTA since 1972. Removing DCCOs from MBTA protection would not only be contrary to the intent and purpose of the original treaty, but would require amending it, a process involving lengthy negotiations and approval of the U.S. Senate and President. Since DCCOs are protected by family (*Phalacrocoracidae*) rather than by species, the end result could be the loss of protection for all North American cormorant species in addition to that of DCCOs. At this time, there is adequate authority for managing cormorant conflicts within the context of their MBTA protection and, thus, we believe the suggestion to remove DCCOs from MBTA protection is not practical, necessary, or in the best interest of the migratory bird resource.

Comment 11: Private landowners should be allowed to control DCCOs on their lands.

Service Response: The take of DCCOs and other migratory birds is regulated by the MBTA and, in most cases, requires a Federal permit. Under the aquaculture depredation order, private commercial aquaculture producers in 13 States are allowed to control DCCOs on their fish farms without a Federal permit. However, all other individuals who experience damages to private resources must contact the appropriate Service Regional Migratory Bird Permit Office for a depredation permit. There is not sufficient justification for authorizing “private landowners” in general to take DCCOs without a Federal permit.

Comment 12: The proposed action will be more effective if agencies coordinate with each other.

Service Response: Yes, this is true. While agencies are not required under the public resource depredation order to coordinate with each other, they are entirely free to do so.

Comment 13: Humaneness and the use of nonlethal methods should be emphasized.

Service Response: Wherever feasible, we have required the use of nonlethal methods before killing is allowed. All authorized control techniques for killing birds outside of the egg are approved by the American Veterinary Medical Association as being humane for the euthanization of birds.

Comment 14: The Service needs to better educate the public about DCCOs.

Service Response: We have prepared fact sheets for public distribution. Information about DCCOs is available at our website <http://migratorybirds.fws.gov/issues/cormorant/cormorant.html>. Our intention is to distribute fact sheets on the depredation orders in the near future. Beyond DCCOs, we participate in numerous outreach activities around the nation to increase public awareness about the importance of migratory birds and other Federal trust species.

Comment 15: The Service needs to issue permits to allow DCCOs to be shot legally at anytime.

Service Response: The authorization of virtually unregulated shooting of DCCOs would clearly not be a fulfillment of our responsibilities under the MBTA, since it could lead to extermination of the species. We can only allow take under appropriately adopted regulations that are consistent with our obligations and the relevant treaties. The depredation orders issued in this rulemaking only authorize take of DCCOs in certain locations and timeframes, and by certain agencies, to ensure this take is consistent with the purpose for which the depredation order was established.

Comment 16: DCCOs are being scapegoated for fishery declines.

Service Response: The Service recognizes that many factors other than DCCOs can contribute to fishery declines. However, studies have shown that in some cases cormorants are a significant contributing factor to these declines and therefore we believe that DCCO management, where there is evidence of real conflicts, is likely to have beneficial impacts.

Comment 17: The Service is dumping the burden of DCCO control on the States; the Service should take care of the DCCO problem since they created it.

Service Response: The public resource depredation order is not a requirement being forced upon the States (or any other agency). The decision ultimately lies with individual agencies to choose whether or not to use the authority granted to them by the public resource depredation order. As we were considering options for addressing DCCO conflicts more effectively, it became clear that, since many conflicts tend to be localized in nature, a sensible and flexible solution was to allow local agencies more authority in deciding when to control cormorants. The Service did not “create” the cormorant problem. Their population increases are due to many factors, most of which are entirely out of our control.

Comment 18: The Service should provide financial support for DCCO control.

Service Response: We are currently unable to provide funding to other agencies under the public resource depredation order. However, in our Congressional budget request, we have asked for increased financial resources to implement the DCCO selected action. This figure specifically includes money that could be used in cooperative efforts with States and other agencies to conduct cormorant monitoring, research, and management.

Comment 19: California and Wisconsin should be added to the aquaculture depredation order.

Service Response: We do not believe that adding States to the aquaculture depredation order is necessary at this time. Private, commercial, freshwater aquaculture producers can obtain depredation permits to take DCCOs at their fish farms.

Comment 20: The final rule should allow proactive measures to be taken so problems can be dealt with before they become serious.

Service Response: The rule does allow for proactive measures to a certain extent. Both depredation orders allow DCCOs to be taken when “committing or *about to commit* depredations.” The public resource depredation order takes this a step further by allowing for take of DCCOs to *prevent* depredations on public resources.

Comment 21: Expansion of the aquaculture depredation order to authorize winter roost control should not be

allowed.

Service Response: The USDA report, “A Science-Based Initiative to Manage Double-Crested Cormorant Damage to Southern Aquaculture” notes that “Coordinated and simultaneous harassment of cormorants can disperse them from night roosts and reduce damage at nearby catfish farms” and cites three scientific studies that support this claim. It then concludes that shooting at roosts “might enable farmers to reduce the number of birds on their farms significantly...” Part of the logic behind this is that studies in the Mississippi Delta have shown that, while DCCOs move widely in general, they tend to exhibit high roost fidelity. This implies that shooting birds at roosts (where turnover is lower) is likely to be more effective at alleviating damages than shooting birds just at ponds (where turnover is higher).

Comment 22: Actions in the proposed rule should not be allowed to take place.

Service Response: Clearly, we and our cooperators, APHIS Wildlife Services disagree with this statement. The Record of Decision below explains our rationale.

Comment 23: Hatcheries and fish farms should only be allowed to use nonlethal methods.

Service Response: Shooting is a legitimate and effective technique for scaring away or killing depredating birds that, when done in a controlled manner, has no adverse impact on populations.

Comment 24: Habitat damage caused by DCCOs has not been quantified or confirmed.

Service Response: This statement is incorrect. Vegetation/habitat damage has been both confirmed and quantified. See the FEIS, section 4.2.4, for more details.

Comment 25: APHIS Wildlife Services should be granted full authority to manage migratory birds.

Service Response: Under the MBTA and other laws, the Service has been delegated full responsibility for authorizing the take of and management of migratory bird populations. It would require an act of Congress to grant APHIS this authority. We do not support such action.

Comment 26: The Service should take the lead in DCCO research.

Service Response: The Migratory Bird Management Program monitors over 800 bird species in North America, including cormorants. However, we are not specifically a research agency. Our involvement in research consists mainly of providing financial assistance to researchers. In fewer cases, we are involved in direct research activities (such as color banding work being done in Lake Michigan by the USFWS Green Bay Field Office). We recognize that we have a leadership role to play in encouraging DCCO research.

Comment 27: The proposed rule is not based on “sound science.”

Service Response: The Service recognizes the importance of resource management being science-based, and we will always defer to well-designed scientific studies when such information is available. In this case, the Service relied on scientific studies as well as the best available biological knowledge to make its decision. Additionally, social, political, and economic factors contribute to the Service’s decisions regarding whether or not to address a problem. Our position is that there is sufficient biological and socioeconomic justification to pursue a solution and sufficient biological information to meet the requirements of the MBTA and to support this rulemaking action.

Comment 28: The Service is caving in to “political pressure” and “special interests.”

Service Response: Given the fact that DCCO populations are not at risk in the areas where the depredation orders are authorized, and the Service is granted management flexibility under the MBTA, we believe it is appropriate to

permit control of local DCCO populations. We have considered input from all stakeholders and believe that our decision reflects an appropriate balance of the public interest. Our goal in this and every other issue under our jurisdiction is to make informed, impartial decisions based on scientific and other considerations.

Comment 29: The Service should stay with the No Action alternative.

Service Response: In recent years, it has become clear from public and professional feedback that the status quo is not adequately resolving DCCO conflicts for many stakeholders. Furthermore, our environmental analysis indicated that conflicts were more likely to be resolved under other options than under Alternative A.

Comment 30: The proposed rule is a wrongful abdication of the Service's MBTA responsibilities.

Service Response: We disagree. Rather than an abdication of our responsibilities, this rule is an exercise of them. The public resource depredation order by no means puts an end to the Federal role in migratory bird management. The conservation of migratory bird populations is and will remain the Service's responsibility. Second, while the MBTA gives the Federal Government (as opposed to individual States) the chief responsibility for ensuring the conservation of migratory birds, this role does not preclude State involvement in management efforts. Bean (1983) described the Federal/State relationship as such (emphases added):

"It is clear that the Constitution, in its treaty, property, and commerce clauses, contains ample support for the development of a comprehensive body of federal wildlife law and that, to the extent such law conflicts with state law, it takes precedence over the latter. That narrow conclusion, however, does not automatically divest the states of any role in the regulation of wildlife or imply any preference for a particular allocation of responsibilities between the states and the federal government. It does affirm, however, that such an allocation can be designed without serious fear of constitutional hindrance. In designing such a system, for reasons of policy, pragmatism, and political comity, it is clear that the states will continue to play an important role either as a result of federal forbearance or through the creation of opportunities to share in the implementation of federal wildlife programs."

Nowhere in the MBTA is the implementation of migratory bird management activities limited to the Federal Government. In fact, the statute specifically gives the Secretary of Interior the authority to determine when take of migratory birds may be allowed and to adopt regulations for this purpose. Additionally, we've ensured that this rule does not conflict with the Convention for the Protection of Migratory Birds and Game Mammals between the U.S. and Mexico (under which cormorants are protected). Finally, the depredation orders specifically limit the authority of non-Federal entities through the terms and conditions, including suspension and revocation procedures, advance notification requirements, and other restrictions. We would also note that we have the authority to amend this rule in the future if DCCO population status or other conditions demand it.

Comment 31: The Service should more fully consider the economic value of DCCOs and activities associated with them such as birding and photography.

Service Response: Assigning economic value to any wildlife species is difficult, and it is made all the more so when that species (such as the DCCO) is of little direct use to humans. However, this should not be read to imply that we have no regard for the indirect and intangible values of cormorants as a native part of the North American avifauna. As such, we stated clearly in the FEIS (p. 6) that DCCOs "have inherent value regardless of their direct use to humans." A quantitative analysis of the economic benefits associated with DCCO was not possible at this time due to lack of studies in this area. The Service welcomes submission of such studies and will consider them in its analysis of future depredation orders, if applicable.

Comment 32: In addition to the Service, States and APHIS Wildlife Service should have a say in revoking authority under the depredation orders.

Service Response: Since, under the MBTA, the Service is the chief agency responsible for migratory bird management, it is our responsibility to decide when to revoke an agency's or individual's authority under the

depredation orders. We do, however, give agencies a chance to appeal any revocation decisions.

Comment 33: The public resource depredation order has no sound biological underpinning.

Service Response: We have analyzed the available biological information in the FEIS. We believe our decision is supported by the information available at this time.

Comment 34: Proposed rule contains too much “red tape.”

Service Response: We can understand that some people see the rule as having too many mandatory terms and conditions but these are necessary to ensure that the depredation orders are used for their stated purposes and to safeguard cormorant populations and other Federal trust species (e.g., other migratory birds and ESA-protected species). We tried to make the final rule as flexible as we could without compromising these factors.

Comment 35: The public resource depredation order should be expanded to include damages to private property as well.

Service Response: The public resource depredation order does not provide direct relief to private landowners experiencing DCCO conflicts. This is partly because such conflicts have not been well-documented and partly because our practice is not to allow the take of migratory birds, a public resource, to alleviate *minor* damages to private resources (a similar example would be hawks that take privately owned game birds). While the biological and other justification for implementing the aquaculture and public resource depredation orders is strong, this is not necessarily the case for impacts to private resources. In cases of significant economic damage caused by DCCOs, private landowners may request a depredation permit from the appropriate Service Regional Migratory Bird Permit Office.

Comment 36: Requiring monitoring at all control sites is too much of a burden; agencies should be able to use best available information.

Service Response: We understand that strict monitoring requirements (i.e., population surveys) can be cost prohibitive and that, to a certain degree such monitoring is the Service’s responsibility. It is important that agencies thoroughly evaluate the impacts of their management actions on DCCOs and, in some cases, on other resources, but we don’t want these requirements to be so cost prohibitive that agencies are unable to take any action. Thus, in the final rule, we changed slightly the wording in §21.48(d)(12) to account for this.

Comment 37: Monitoring should be required no less than once every 3 years.

Service Response: The Service currently surveys or sponsors surveys of colonial waterbirds every 5-10 years. We believe that such frequency is adequate to ensure the long-term conservation of populations of DCCOs and other migratory birds.

Comment 38: The winter roost control season should be extended to include April.

Service Response: Since numbers of DCCOs at fish farms in the southern United States are known to peak in March and April, and to cause the most damage at that time, we added April to the months in which roost control can occur.

Comment 39: Monitoring requirements under the public resource depredation order are too vague.

Service Response: We may provide future guidelines for monitoring and evaluation for the benefit of other agencies. Until such guidelines are issued, the Service intends to rely on States, Tribes, and APHIS Wildlife Services to develop and implement protocols for evaluation of the effects of control actions.

Comment 40: The proposal is likely to inflame relations between tribal and nontribal interests.

Service Response: We have not seen sufficient evidence to evaluate whether or not this is indeed likely to occur.

Comment 41: The aquaculture depredation order should be expanded to include all 48 States.

Service Response: At this time, we do not believe the available evidence indicates that expansion beyond 13 States is necessary to further protect commercial aquaculture stock. The issuance of depredation permits for damage at private fish farms is a high priority and, therefore, it is generally a quick process for aquaculture producers to obtain a depredation permit through their Regional Migratory Bird Permit Office.

Comment 42: Under the public resource depredation order, nonlethal techniques (e.g., harassment) should not be prescribed as a mandatory first step at multispecies breeding colonies because of the risk of disturbance.

Service Response: We understand that harassment efforts can have secondary impacts on other colonially nesting birds and that is precisely why we did not require such efforts to be used first but rather stated that they be used “when these are considered effective and practicable by the responsible Agency.” We have since changed it to read that agencies “should first utilize nonlethal control methods such as harassment and exclusion devices when these are considered effective and practicable and *not harmful to other nesting birds.*”

Comment 43: The Service should issue guidelines making it clear what constitutes depredation on a public resource.

Service Response: In developing the rule, USFWS wanted to maximize the flexibility of other agencies in determining what constitutes a public resource depredation. We understand that there are concerns about all of the “what ifs” that could conceivably take place in the absence of guidelines. We have made the purpose of the depredation orders clear, and we trust that our agency partners will not abuse their authority. If they do, we have the option to suspend or revoke their authority under the depredation order or to amend this rule.

Comment 44: In the proposed rule, the only advanced requirement for agencies to initiate a control program is to submit a one-time notice to the Service. The rule does not require evaluation of potential impacts before control actions occur.

Service Response: In the final rule, under the public resource depredation order, we have added a clause for advance notification of control actions that would take 10% or more of the birds in a breeding colony. This will allow us to review such actions for compliance with the purpose of the order and for impacts on overall cormorant populations. Inherent in the idea of this public resource depredation order is the Service’s trust in the professionalism and conservation expertise of the States, Tribes, and APHIS Wildlife Services. At the same time, we will continue our role of providing oversight to ensure that the cumulative effects of activities under the depredation orders do not threaten the long-term conservation of DCCO populations.

Comment 45: There is no process outlined for disputing control at a particular site. Control activities might come into conflict with ongoing research activities.

Service Response: We do not intend to establish guidelines for dispute resolution or public notice of proposed control efforts. In some cases, NEPA analysis will be necessary and this will open the door for limited public input regarding specific management actions. We cannot guarantee that conflicts won’t occur between control and research activities. Researchers will need to coordinate with local resource agencies (as, presumably, they are already doing) on this issue.

Comment 46: The public resource depredation order should have a requirement for agencies to formally assess a control site before control is carried out to determine potential impacts to other species.

Service Response: We do not intend to require formal assessment of control sites before control is conducted. The final rule requires that agencies must provide advance notification for certain actions, including information on the

location and a description of the proposed control activity, specifying what public resources are being impacted, how many birds are likely to be taken and what approximate percentage they are of total DCCOs present, and which species of other birds are present. Additionally, in their annual reports, agencies must provide us with detailed information on why they're conducting control actions, including what they're doing to minimize effects on other species. Agencies don't have to report this information until after control actions have occurred, but we believe this process is sufficient.

Comment 47: The proposed rule seems to violate the Service's mission to "conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

Service Response: We do not in any way believe that the rule interferes with our conservation mission. Our responsibility is to ensure the long-term conservation of DCCO populations, and we will do so. A mission is a general statement of an agency's vision that, by its very nature, cannot encompass every potential management responsibility. We believe that managing certain species to address economic or social concerns, while ensuring the long-term conservation of such species is consistent with our mission.

Comment 48: The Service has not established a process by which other agencies could set population goals.

Service Response: At some point in the future, we may initiate a process for setting population goals. States and other agencies are fully capable of doing this on their own in local situations (DCCO management efforts on Little Galloo Island in New York are a good example). The public resource depredation order does not authorize regional population management, and, therefore, regional goals are not yet necessary.

Comment 49: The return of an extirpated species to its former breeding range is a positive ecological event.

Service Response: Weseloh et al. (1995, p48) wrote that DCCO population increases in North America "have involved more than just a re-occupation of areas which experienced severe population declines or extirpations...previously unoccupied breeding and wintering areas have now been colonized" and gave three citations supporting this hypothesis. Regardless of whether or not DCCOs had previously occurred in some parts of their range, we have to manage and conserve them by today's standards, not those of a hundred (or more) years ago. Our intent under the final rule is not to eliminate cormorants on a regional or national level but to manage them, even to the point of reducing local populations, so that there are fewer impacts to natural and human resources. We fully understand that fish-eating birds are a natural part of the ecosystem and that, within limits prescribed by the need to consider the bigger picture than "ecological" factors alone, population recovery is a positive event.

Comment 50: Only State wildlife agencies should be allowed to take or permit the take of DCCOs at nesting colonies in their State.

Service Response: Under the public resource depredation order, any agency that takes DCCOs must have landowner permission and, if required, a State permit to take DCCOs. We believe that these clauses are sufficient to avoid compromising State oversight.

Comment 51: Issuing a resource depredation order for DCCOs under the proposed rule would set a dangerous precedent for fish-eating birds in the United States and in other nations to our south.

Service Response: We do not agree with the statement that the depredation orders are a "dangerous" precedent. Each conflict must be evaluated on its own merits. If problems with other fish-eating birds arise in the future, we will give full and fair consideration to these issues.

Comment 52: The Service should require safe management practices when DCCO control is conducted to protect birders.

Service Response: Conducting DCCO control in a manner that does not threaten human health or safety is the

responsibility of the agencies and individuals carrying out the actions.

Comment 53: The scientific and public outcry against the Service's proposed rule should be convincing. Sound science is being supplanted by perceptions fueling political cries for substantial lethal population controls.

Service Response: We would note that there is also public outcry against the status quo and in support of the final rule. We believe that our decision is supported by the available data. Furthermore, the rule requires that agencies who act under the public resource depredation order have sound reasoning for doing so.

Comment 54: The Service must publish a Final EIS, Record of Decision, and appropriate Section 7 consultation documents prior to engaging in the rulemaking process.

Service Response: This is not a correct statement of the requirements of either the National Environmental Policy Act or the Endangered Species Act. Issuance of these regulations is in compliance with both of these laws.

Comment 55: The Service cannot establish depredation orders for DCCOs because they are not a "migratory game bird" pursuant to 50 CFR 21.42.

Service Response: This is incorrect because our authority for issuing a depredation order comes from the MBTA, not 50 CFR 21.42. Section 21.42 is a regulation adopted by the Service that allows the Director to issue depredation orders under certain circumstances. This new regulation is in addition to 21.42.

Comment 56: The Service needs to specify how the depredation orders will be enforced.

Service Response: We have law enforcement agents in every State who investigate violations of Federal wildlife laws. Providing the details of how they work is neither necessary nor sensible since such details could prevent the prosecution of those who violate the terms and conditions of the orders.

Comment 57: The requirement to report unauthorized take of migratory birds or threatened and endangered species requires individuals to incriminate themselves and thus violates the Fifth Amendment to the Constitution.

Service Response: While any take, unless permitted, is prohibited by statute, the Service directs its enforcement efforts on those individuals or companies that take migratory bird species outside the scope of the depredation orders. It is incumbent on those who will be working under the orders to have a working knowledge of what is authorized and to properly act under its terms and conditions. Failure to report would be grounds to revoke authorization. The Service sees the reporting requirements not as an attempt to identify the unlawful take of migratory birds but as a management tool to reduce unauthorized take.

Cormorant Regulations Under the Rule

This final rule implements the FEIS selected action in the following ways: (1) it revises the 1998 aquaculture depredation order that allows APHIS/WS to protect public and private aquacultural stock in the 13 States listed in 50 CFR 21.47 by also allowing the take of DCCOs at winter roost sites and at State and Federal fish hatcheries; and (2) it establishes a new depredation order authorizing State fish and wildlife agencies, Federally recognized Tribes, and APHIS/WS to take DCCOs without a Federal permit to protect public resources on public and private lands and freshwaters in 24 States (the 13 States listed in 50 CFR 21.47 and 11 additional States). Both of the actions revise subpart D of 50 CFR 21.

NEPA Considerations

In compliance with the requirements of section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(C)), and the Council on Environmental Quality's regulation for implementing NEPA (40 CFR 1500-1508), we published a DEIS in December 2001, followed by a 100-day public comment period. In August 2003, both the Service and the Environmental Protection Agency published notices of availability for the FEIS in the Federal Register. This FEIS is available to the public (see ADDRESSES).

Endangered Species Act Considerations

Section 7(a)(2) of the Endangered Species Act, as amended (16 U.S.C. 1531-1543; 87 Stat. 884) provides that “Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out...is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat....” We completed a biological evaluation and informal consultation (both available upon request; see ADDRESSES) under Section 7 of the ESA for the action described in this final rule. In the letter of concurrence between the Division of Migratory Bird Management and the Division of Endangered Species, we concluded that the inclusion of specific conservation measures in the final rule satisfies concerns about the four species (piping plover, interior least tern, bald eagle, and wood stork) and therefore the proposed action is not likely to adversely affect any threatened, endangered, or candidate species.

Executive Order 12866

In accordance with the criteria in Executive Order 12866, this action is a significant regulatory action subject to Office of Management and Budget review. OMB has made this determination of significance under the Executive Order. OMB has determined that this action raises novel legal or policy issues. This rule will not have an annual economic effect of \$100 million or more or adversely affect any economic sector, productivity, competition, jobs, the environment, or other units of government. The purpose of this rule is to help reduce adverse effects caused by cormorants, thereby providing economic relief. The total estimated economic impact of DCCOs is less than \$50 million per year. Assuming that landowners (e.g., aquaculture producers) and other stakeholders utilize, informally or formally, some degree of cost-benefit analysis, the financial expenses to control cormorant problems should not exceed the damages incurred. Thus we can assume that the total annual economic effect of this rule will be less than \$50 million.

This rulemaking action will not create inconsistencies with other agencies’ actions or otherwise interfere with an action taken or planned by another agency. The selected action is consistent with the policies and guidelines of other Department of the Interior bureaus. This action will not materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) requires the preparation of flexibility analyses for actions that will have a significant economic effect on a substantial number of small entities, which includes small businesses, organizations, or governmental jurisdictions. Because of the structure of wildlife damage management, the economic impacts of our action will fall primarily on State governments and APHIS/WS. These do not qualify as “small governmental jurisdictions” under the Act’s definition. Effects on other small entities, such as aquacultural producers, will be positive but are not predicted to be significant. Thus, we have determined that a Regulatory Flexibility Act analysis is not required.

Small Business Regulatory Enforcement Fairness Act

This rule is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. It will not have an annual effect on the economy of \$100 million or more, nor will it cause a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions. It will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises.

Paperwork Reduction Act and Information Collection

In accordance with the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the Office of Management and Budget (OMB) has approved the information collection requirements included in this final rule under OMB control number 1018-0121, which expires on May 31, 2006. Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

We will collect information from State, Tribal, and Federal agencies and private aquaculture producers who conduct DCCO management under the authority of the depredation orders. The specific monitoring and reporting

requirements associated with this rule are listed below. The information collected will help us to determine how many DCCOs are being taken and for what purposes.

In response to public comments on the proposed rule (68 FR 12653, March 17, 2003), we added one new information collection requirement in this final rule that was not included in the proposed rule. That new requirement is advance notification to the Service of any control actions that would take more than 10 percent of a breeding DCCO population. This new requirement is located in § 21.48 (d)(9) and adds 165 hours to the total annual hour burden of these information collection requirements.

The information collections associated with this final rule are in §§ 21.47(d)(7), (d)(8), and (d)(9) and 21.48(d)(7), (d)(8), (d)(9), (d)(10) and (d)(12) and are listed below in the amendments to 50 CFR part 21. The breakdown of the information collection burden is as follows: We estimate that §§ 21.47(d)(7) and (d)(8) will have 50 annual responses at an estimated .5 burden hours per response; we estimate that § 21.47(d)(9) will have 900 annual responses at an estimated 2 burden hours per response; we estimate that §§ 21.48(d)(7) and (d)(8) will have 10 annual responses at an estimated .5 burden hours per response; we estimate that § 21.48(d)(9) will have 75 annual responses at an estimated average of 3 burden hours per response; we estimate that § 21.48(d)(10) will have 60 annual responses at an estimated 20 burden hours per response; and we estimate that § 21.48(d)(12) will have 10 annual responses at an estimated 80 burden hours per response. Overall, we estimate that a total of 960 respondents will annually submit a total of 1,105 responses to the recordkeeping and reporting requirements associated with these depredation orders. Each response will require an average of 3.67 hours to complete, for a total of 4,055 hours per year for all of the information collection and recordkeeping requirements in this final rule.

OMB regulations at 5 CFR part 1320 require that interested members of the public and affected agencies have an opportunity to comment on information collection and record keeping activities. If you have any comments on this information collection at any time, please contact the Service Information Collection Officer, 4401 N. Fairfax Drive, Suite 222, Arlington, VA 22203.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 requires agencies to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. We have determined, in compliance with the requirements of the Unfunded Mandates Reform Act, 2 U.S.C. 1502 et seq., that the selected action would not “significantly or uniquely” affect small governments, and will not produce a Federal mandate of \$100 million or more in any given year on local or State government or private entities. Therefore, this action is not a “significant regulatory action” under the Unfunded Mandates Reform Act.

Takings Implication Assessment

In accordance with Executive Order 12630, this action does not have significant takings implications and does not affect any constitutionally protected property rights. This action will not result in the physical occupancy of property, the physical invasion of property, or the regulatory taking of any property. In fact, this action will help alleviate private and public property damage and allow the exercise of otherwise unavailable privileges.

Federalism Effects

Due to the migratory nature of certain species of birds, the Federal Government has been given statutory responsibility over these species by the MBTA. While legally this responsibility rests solely with the Federal Government, in the best interest of the migratory bird resource we work cooperatively with States and other relevant agencies to develop and implement the various migratory bird management plans and strategies. This action does not have a substantial direct effect on fiscal capacity, change the roles or responsibilities of Federal or State governments, or intrude on State policy or administration. It will allow, but will not require, States to develop and implement their own DCCO management programs. Therefore, in accordance with Executive Order 13132, this action does not have significant federalism effects and does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Civil Justice Reform

Under Executive Order 12988, the Office of the Solicitor has determined that this policy does not unduly burden the judicial system and meets the requirements of Sections 3(a) and 3(b)(2) of the Order.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951) and Executive Order 13175, we have determined that this action has no significant effects on Federally recognized Indian Tribes. In order to promote consultation with Tribes, a copy of the DEIS was mailed to all Federally recognized Tribes in the continental United States.

Energy Effects—Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. As the selected action is not expected to significantly affect energy supplies, distribution, or use, this action is not a significant energy action and no Statement of Energy Effects is required.

RECORD OF DECISION

The Record of Decision for management of double-crested cormorants in the United States, prepared pursuant to National Environmental Policy Act (NEPA) regulations at 40 CFR 1505.2, is herein published in its entirety.

This Record of Decision (ROD) has been developed by the U.S. Fish and Wildlife Service (Service) in compliance with the agency decision-making requirements of NEPA. The purpose of this ROD is to document the Service's decision for the selection of an alternative for managing resource damages associated with the double-crested cormorant (DCCO). Alternatives have been fully described and evaluated in the August 2003 Final Environmental Impact Statement (FEIS) on DCCO management in the United States.

This ROD is intended to: (a) state the Service's decision, present the rationale for its selection, and describe its implementation; (b) identify the alternatives considered in reaching the decision; and (c) state whether all means to avoid or minimize environmental harm from implementation of the selected alternative have been adopted (40 CFR 1505.2).

PROJECT DESCRIPTION

Increases in DCCO populations over the past 25 years, combined with other environmental and social factors, have led to greater occurrences of both real and perceived conflicts with human and natural resources. In 1999, in response to urgings from the public and from State and Federal wildlife agencies, the Service decided to prepare a programmatic EIS, in cooperation with the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS/WS), to evaluate the significance of, and consider alternatives to address, conflicts associated with DCCOs.

KEY ISSUES

Public involvement occurred throughout the EIS and rulemaking process. From 1999 to 2003, we held 22 public meetings over the course of more than 10 months of total public comment. Through public scoping (the first stage of public comment) and agency discussions, key issues were identified. Key issues can be placed into two general categories: (1) impacts caused by DCCOs (including impacts to other birds, fish, vegetation, aquaculture, Federally listed species, water quality, hatcheries, recreational fishing economies, and commercial fishing); and (2) impacts caused by control actions (including impacts to DCCO populations, other birds, Federally listed species, and existence and aesthetic values). In the EIS environmental analysis, these issues made up the environmental categories for which effects of the different alternatives were considered.

The alternatives were also considered in terms of their ability to fulfill the purpose of the proposed action: to reduce resource conflicts associated with DCCOs in the contiguous United States, to enhance the flexibility of natural

resource agencies in dealing with DCCO-related resource conflicts, and to ensure the long-term conservation of DCCO populations.

ALTERNATIVES

Since the FEIS is a programmatic document, the alternatives reflect general management approaches to the alleviation of DCCO resource damages. Six alternatives were examined in the EIS: (A) No Action, (B) Nonlethal, (C) Increased Local Damage Control, (D) Public Resource Depredation Order, (E) Regional Population Reduction, and (F) Regulated Hunting.

Alternative A

Alternative A is essentially the no change, or status quo, alternative. The main features of this alternative are the issuance of a small number of depredation permits to address DCCO conflicts; an aquaculture depredation order that allows commercial, freshwater aquaculture producers in 13 States to shoot DCCOs without a permit; unregulated nonlethal harassment of DCCOs; and Director's Order No. 27, which prevents most public fish hatcheries from conducting lethal take of DCCOs.

Alternative B

Alternative B would not allow the take of DCCOs or their eggs. Only harassment methods and physical exclusion devices would be used to prevent or control DCCO damages.

Alternative C

Alternative C would allow for increased take of DCCOs, through a revision of our cormorant damage management practices, but agencies and individuals would still have to obtain a depredation permit. It would also revise the aquaculture depredation order to allow winter roost control.

Alternative D

Alternative D, the selected action, creates a public resource depredation order to authorize State fish and wildlife agencies, Federally recognized Tribes, and APHIS/WS to take DCCOs found committing or about to commit, and to prevent, depredations on the public resources of fish (including hatchery stock at Federal, State, and Tribal facilities), wildlife, plants, and their habitats. This authority applies to all lands and freshwaters (with appropriate landowner permission) in 24 States (Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, New York, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin). This alternative also revises the aquaculture depredation order by specifying that it is applicable to commercial freshwater facilities and State and Federal fish hatcheries, and by authorizing APHIS/WS employees to take DCCOs at roost sites in the vicinity of aquaculture facilities during the months of October, November, December, January, February, March, and April. Depredation permits would continue to be used to address conflicts outside the authority of the depredation orders.

Alternative E

Alternative E would reduce regional DCCO populations to pre-determined levels. Population objectives would be developed on an interdisciplinary, interagency basis and would be based on the best available data, while giving consideration to other values. Control would be carried out at nesting, roosting, wintering, and all other sites in order to achieve those objectives as rapidly as possible without adversely affecting other protected migratory birds or threatened and endangered species.

Alternative F

Under Alternative F, frameworks to develop seasons and bag limits for hunting DCCOs would be established jointly by Federal and State wildlife agencies. These seasons would coincide with those for waterfowl hunting.

DECISION

The Service's decision is to implement the preferred alternative, Alternative D, as it is presented in the final rule. This decision is based on a thorough review of the alternatives and their environmental consequences.

Other Agency Decisions

A Record of Decision will be produced by APHIS/WS. The responsible officials at APHIS/WS will adopt the FEIS.

RATIONALE FOR DECISION

As stated in the CEQ regulations, "the agency's preferred alternative is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors." The preferred alternative has been selected for implementation based on consideration of a number of environmental, regulatory, and social factors. Based on our analysis, the preferred alternative would be more effective than the current program; is environmentally sound, cost effective, and flexible enough to meet different management needs around the country; and does not threaten the long-term sustainability of DCCO populations or populations of any other natural resource.

Alternative D was selected because it allows greater responsiveness in addressing localized resource damages (and will therefore be more effective at reducing or preventing them) than the No Action Alternative. It will provide a net benefit to fish, wildlife, and plants by allowing agencies to control DCCOs to protect these resources from damages. It will also alleviate economic damages to aquaculture. Through successful implementation of mitigation measures, it will not result in negative impacts to DCCO populations, other migratory birds, or Federally listed species. As such, this alternative represents the environmentally preferable alternative.

The No Action Alternative (A) was not selected for implementation because by itself it would not adequately address resource damages caused by DCCOs. The Nonlethal Management Alternative (B) was not selected because it severely limits the scope of allowable control techniques and would not adequately address resource damages caused by DCCOs. The Increased Local Damage Control Alternative (C) was not selected because it does not provide other agencies with the flexibility needed to adequately address resource damages caused by DCCOs. The Regional Population Reduction Alternative (E) was not selected because of uncertainty about the actual relationship between cormorant numbers and distribution and subsequent damages. The Regulated Hunting Alternative (F) was not selected because hunting is not a biologically or socially acceptable means of reducing DCCO damages.

List of Subjects in 50 CFR Part 21

Exports, Hunting, Imports, Reporting and recordkeeping requirements, Transportation, Wildlife.

For the reasons stated in the preamble, we hereby propose to amend part 21, of subchapter B, chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 21--[AMENDED]

1. The authority citation for part 21 is revised to read as follows:

Authority: Pub. L. 95-616; 92 Stat. 3112 (16 U.S.C. 712(2)); Pub. L. 106-108; Section 3 of the Migratory Bird Treaty Act (16 U.S.C. 704), 40 Stat. 755.

2. In Subpart D, revise § 21.47 to read as follows:

§ 21.47 Depredation order for double-crested cormorants at aquaculture facilities.

(a) What is the purpose of this depredation order?

The purpose of this depredation order is to help reduce depredation of aquacultural stock by double-crested cormorants at private fish farms and State and Federal fish hatcheries.

(b) In what areas can this depredation order be implemented?

This depredation order applies to commercial freshwater aquaculture facilities and to State and Federal fish hatcheries in the States of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Minnesota, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas.

(c) What does this depredation order allow and who can participate?

(1) This depredation order authorizes landowners, operators, and tenants (or their employees or agents) actually engaged in the commercial, Federal, or State production of freshwater aquaculture stocks to take, without a Federal permit, double-crested cormorants when they are found committing or about to commit depredations to aquaculture stocks. This authority is applicable only during daylight hours and only within the boundaries of freshwater commercial aquaculture facilities or State and Federal hatcheries.

(2) This depredation order authorizes employees of the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service to take double-crested cormorants, with appropriate landowner permission, at roost sites in the vicinity of aquaculture facilities, at any time, day or night, during the months of October, November, December, January, February, March, and April.

(3) Authorized employees of the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service may designate agents to carry out control, provided these individuals act under the conditions of the order.

(d) What are the terms and conditions of this order?

(1) Persons operating under paragraph (c)(1) of this section may only do so in conjunction with an established nonlethal harassment program as certified by officials of the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service. Wildlife Services directive 2.330 outlines this certification process.

(2) Double-crested cormorants may be taken only by shooting with firearms, including rifles. Persons using shotguns are required to use nontoxic shot as listed in 50 CFR 20.21(j).

(3) Persons operating under this depredation order may use decoys, taped calls, or other devices to lure within gun range birds committing or about to commit depredations.

(4) Persons operating under this depredation order must obtain appropriate landowner permission before implementing activities authorized by the order.

(5) Double-crested cormorants may not be killed contrary to the laws or regulations of any State, and none of the privileges of this section may be exercised unless the person possesses the appropriate State or other permits, if required.

(6) Persons operating under this depredation order must properly dispose of double-crested cormorants killed in control efforts:

(i) Individuals may donate birds killed under authority of this order to museums or other such scientific and educational institutions for the purposes of scientific or educational exhibition;

(ii) Individuals may also bury or incinerate birds taken; and

(iii) Individuals may not allow birds taken under this order, or their plumage, to be sold, offered for sale, bartered, or shipped for purpose of sale or barter.

(7) Nothing in this depredation order authorizes the take of any migratory bird species other than double-crested cormorants. Two look-alike species co-occur with double-crested cormorants in the southeastern States: the anhinga, which occurs across the southeastern United States, and the neotropic cormorant, which is found in varying numbers in Texas, Louisiana, and Oklahoma. Both species can be mistaken for double-crested cormorants, but take of these two species is not authorized under this depredation order. Persons operating under this order must immediately report the take of a migratory bird species other than double-crested cormorants to the appropriate Service Regional Migratory Bird Permit Office.

(8) Nothing in this depredation order authorizes the take of any species protected by the Endangered Species Act. Persons operating under this order must immediately report the take of species protected under the Endangered Species Act to the Service.

(i) To protect wood storks and bald eagles, the following conservation measures must be observed within any geographic area where Endangered Species Act protection applies to these species: All control activities are allowed if the activities occur more than 1,500 feet from active wood stork nesting colonies, more than 1,000 feet from active wood stork roost sites, and more than 750 feet from feeding wood storks, and if they occur more than 750 feet from active bald eagle nests.

(ii) At their discretion, landowners, operators, and tenants may contact the Regional Migratory Bird Permit Office to request modification of the measures listed above in paragraph (d)(8)(i) of this section. Such modification can occur only if the Regional Director determines, on the basis of coordination between the Regional Migratory Bird Permit Office and the Endangered Species Field Office, that wood storks and bald eagles will not be adversely affected.

(iii) If adverse effects are anticipated from the control activities in a geographical area where Endangered Species Act protection applies to wood storks or bald eagles, either during the intra-Service coordination discussions described above or at any other time, the Regional Migratory Bird Permit Office will initiate consultation with the Endangered Species Field Offices.

(9) Persons operating under this depredation order must:

(i) Keep a log recording the date, number, and location of all birds killed each year under this authorization;

(ii) Maintain this log for a period of 3 years (and maintain records for 3 previous years of takings at all times thereafter); and

(iii) Each year, provide the previous year's log to the appropriate Service Regional Migratory Bird Permit Office. Regional Office addresses are found in § 2.2 of subchapter A of this chapter.

(10) We reserve the right to suspend or revoke the authority of any Agency or individual granted by this order if we find that the specified purpose, terms, and conditions have not been adhered to by that Agency or individual or if the long-term sustainability of double-crested cormorant populations is threatened by that Agency's or individual's action(s). The criteria and procedures for suspension, revocation, reconsideration, and appeal are outlined in §§13.27 through 13.29 of this subchapter. For the purposes of this rule, "issuing officer" means the Regional Director and "permit" means the authority to act under this depredation order. For purposes of §13.29(e), appeals shall be made to the Director.

(e) Does this rule contain information collection requirements?

Yes. The information collection requirements in this section are approved by the Office of Management and Budget (OMB) under OMB control number 1018-0121. Federal agencies may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB control number.

(f) When does this depredation order expire?

This depredation order will automatically expire on April 30, 2009, unless revoked or extended prior to that date.

3. In Subpart D, add § 21.48 to read as follows:

§ 21.48 Depredation order for double-crested cormorants to protect public resources.

(a) What is the purpose of this depredation order?

The purpose of this depredation order is to reduce the occurrence and/or minimize the risk of adverse impacts to public resources (fish, wildlife, plants, and their habitats) caused by double-crested cormorants.

(b) In what areas can this depredation order be implemented?

This depredation order applies to all lands and freshwaters in the States of Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, New York, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Vermont, West Virginia, and Wisconsin.

(c) What does this depredation order allow and who can participate?

(1) This depredation order authorizes State fish and wildlife agencies, Federally recognized Tribes, and State Directors of the Wildlife Services program of the U.S. Department of Agriculture Animal and Plant Health Inspection Service (collectively termed “Agencies”) to prevent depredations on the public resources of fish (including hatchery stock at Federal, State, and Tribal facilities), wildlife, plants, and their habitats by taking without a permit double-crested cormorants found committing or about to commit, such depredations.

(2) Agencies may designate agents to carry out control, provided those individuals act under the conditions of the order.

(3) Federally recognized Tribes and their agents may carry out control only on reservation lands or ceded lands within their jurisdiction.

(d) What are the terms and conditions of this order?

(1) Persons operating under this order should first utilize nonlethal control methods such as harassment and exclusion devices when these are considered effective and practicable and not harmful to other nesting birds by the responsible Agency.

(2) Double-crested cormorants may be taken only by means of egg oiling, egg and nest destruction, cervical dislocation, firearms, and CO₂ asphyxiation. Persons using shotguns must use nontoxic shot, as listed in 50 CFR 20.21(j). Persons using egg oiling must use 100 percent corn oil, a substance exempted from regulation by the U.S. Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act.

(3) Persons operating under this depredation order may use decoys, taped calls, or other devices to lure within gun range birds committing or about to commit depredation of public resources.

(4) Persons operating under this depredation order must obtain appropriate landowner permission before implementing activities authorized by the order.

(5) Persons operating under this depredation order may not take double-crested cormorants contrary to the laws or regulations of any State, and none of the privileges of this section may be exercised unless the person possesses the appropriate State or other permits, if required.

(6) Persons operating under this depredation order must properly dispose of double-crested cormorants killed in control efforts:

(i) Individuals may donate birds killed under authority of this order to museums or other such scientific and educational institutions for the purposes of scientific or educational exhibition;

(ii) Individuals may also bury or incinerate birds taken; and

(iii) Individuals may not allow birds taken under this order, or their plumage, to be sold, offered for sale, bartered, or shipped for purpose of sale or barter.

(7) Nothing in this depredation order authorizes the take of any migratory bird species other than double-crested cormorants. Two look-alike species co-occur with double-crested cormorants in the southeastern States: the anhinga, which occurs across the southeastern United States, and the neotropical cormorant, which is found in varying

numbers in Texas, Louisiana, Kansas, and Oklahoma. Both species can be mistaken for double-crested cormorants, but take of these two species is not authorized under this depredation order. Persons operating under this order must immediately report the take of a migratory bird species other than double-crested cormorants to the appropriate Service Regional Migratory Bird Permit Office.

(8) Nothing in this depredation order authorizes the take of any species protected by the Endangered Species Act. Persons operating under this order must immediately report the take of species protected under the Endangered Species Act to the Service.

(i) To protect piping plovers, interior least terns, wood storks, and bald eagles, the following conservation measures must be observed within any geographic area where Endangered Species Act protection applies to these species:

(A) The discharge/use of firearms to kill or harass double-crested cormorants or use of other harassment methods are allowed if the control activities occur more than 1,000 feet from active piping plover or interior least tern nests or colonies; occur more than 1,500 feet from active wood stork nesting colonies, more than 1,000 feet from active wood stork roost sites, and more than 750 feet from feeding wood storks; or occur more than 750 feet from active bald eagle nests;

(B) Other control activities such as egg oiling, cervical dislocation, CO₂ asphyxiation, egg destruction, or nest destruction are allowed if these activities occur more than 500 feet from active piping plover or interior least tern nests or colonies; occur more than 1,500 feet from active wood stork nesting colonies, more than 1,000 feet from active wood stork roost sites, and more than 750 feet from feeding wood storks; or occur more than 750 feet from active bald eagle nests;

(C) To ensure adequate protection of piping plovers, any Agency or its agents who plan to implement control activities that may affect areas designated as piping plover critical habitat in the Great Lakes Region are to obtain prior approval from the appropriate Regional Director. Requests for approval of activities in these areas must be submitted to the Regional Migratory Bird Permit Office. The Regional Migratory Bird Permit Office will then coordinate with the Endangered Species Field Office staff to assess whether the measures in paragraph (B) are adequate.

(ii) At their discretion, Agencies or their agents may contact the Regional Migratory Bird Permit Office to request modification of the above measures. Such modification can occur only if the Regional Director determines, on the basis of coordination between the Regional Migratory Bird Permit Office and the Endangered Species Field Office, that the species listed in (8)(i) will not be adversely affected.

(iii) If adverse effects are anticipated from the control activities in a geographical area where Endangered Species Act protection applies to any of the four species listed in (8)(i), either during the intra-Service coordination discussions described above or at any other time, the Regional Migratory Bird Permit Office will initiate consultation with the Endangered Species Field Offices.

(9) Responsible Agencies must, before they initiate any control activities in a given year, provide a one-time written notice to the appropriate Service Regional Migratory Bird Permit Office indicating that they intend to act under this order.

(i) Additionally, if any Agency plans a single control action that would individually, or a succession of such actions that would cumulatively, kill more than 10 percent of the double-crested cormorants in a breeding colony, it must first provide written notification to the appropriate Service Regional Migratory Bird Permit Office. This letter must be received no later than 30 days in advance of the activity and must provide:

(A) the location (indicating specific colonies, if applicable) of the proposed control activity;

(B) a description of the proposed control activity, specifying what public resources are being impacted, how many birds are likely to be taken and what approximate percentage they are of total DCCOs present, and which species of other birds are present; and

(C) contact information for the person in charge of the control action.

(ii) The Regional Director may prevent any such activity by notifying the agency in writing if the Regional Director deems the activity a threat to the long-term sustainability of double-crested cormorants or any other migratory bird

species.

(10) Persons operating under this order must keep records of all activities, including those of designated agents, carried out under this order. On an annual basis, Agencies must provide the Service Regional Migratory Bird Permit Office with a report detailing activities conducted under the authority of this order, including:

- (i) By date and location, a summary of the number of double-crested cormorants killed and/or number of nests in which eggs were oiled;
- (ii) A statement of efforts being made to minimize incidental take of nontarget species and a report of the number and species of migratory birds involved in such take, if any;
- (iii) A description of the impacts or anticipated impacts to public resources by double-crested cormorants and a statement of the management objectives for the area in question;
- (iv) A description of the evidence supporting the conclusion that double-crested cormorants are causing or will cause these impacts;
- (v) A discussion of other limiting factors affecting the resource (e.g., biological, environmental, and socioeconomic); and
- (vi) A discussion of how control efforts are expected to, or actually did, alleviate resource impacts.

(11) Agencies must provide annual reports to the appropriate Service Regional Migratory Bird Permit Office, as described above, by December 31 for the reporting period October 1 of the previous year to September 30 of the same year. For example, reports for the period October 1, 2003, to September 30, 2004, would be due on or before December 31, 2004. The Service will regularly review Agency reports and will periodically assess the overall impact of this program to ensure compatibility with the long-term conservation of double-crested cormorants and other resources.

(12) In some situations, Agencies may deem it necessary to reduce or eliminate local breeding populations of double-crested cormorants to reduce the occurrence of resource impacts.

(i) For such actions, Agencies must:

- (A) Comply with paragraph 9 of this subsection;
- (B) Carefully plan activities to avoid disturbance of nontarget species;
- (C) Evaluate effects of management activities on cormorants at the control site;
- (D) Evaluate, by means of collecting data or using best available information, effects of management activities on the public resources being protected and on nontarget species; and
- (E) Include this information in the report described above in paragraph (d)(10) of this subsection.

(ii) Agencies may coordinate with the appropriate Service Regional Migratory Bird Permit Office in the preparation of this information to attain technical or other assistance.

(13) We reserve the right to suspend or revoke the authority of any Agency, Tribe, or State Director granted by this order if we find that the specified purpose, terms, and conditions have not been adhered to or if the long-term sustainability of double-crested cormorant populations is threatened by the action(s) of that Agency, Tribe, or State Director. The criteria and procedures for suspension, revocation, reconsideration, and appeal are outlined in §§13.27 through 13.29 of this subchapter. For the purposes of this rule, “issuing officer” means the Regional Director and “permit” means the authority to act under this depredation order. For purposes of §13.29(e), appeals shall be made to the Director.

(e) Does this rule contain information collection requirements?

Yes. The information collection requirements in this section are approved by the Office of Management and Budget (OMB) under OMB control number 1018-0121. Federal agencies may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB control number.

(f) When does this depredation order expire?

This depredation order will automatically expire on April 30, 2009, unless revoked or extended prior to that date.

Date: September 25, 2003

Paul Hoffman

Acting Assistant Secretary – Fish, Wildlife, and Parks

BILLING CODE: 4310-55-P