Accuracy Assessment Procedures
Scotts Bluff National Monument
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Contributions by
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The accuracy assessment (AA) at Scottsbluff National Monument was designed for use with two independent mapping efforts (AIS/ESRI and Bureau of Reclamation) intended as a benchmarking study. Both maps were generated using basically the same vegetation description, classification systems, aerial photography, and orthophoto basemap.

In order to avoid two repetitive ground field efforts, the sampling plan was devised from a combination of both vegetation maps. Using OR logic, overlays were created using both maps as input for each class, and random samples were developed for each class in excess of 30 polygons. Where there were less than 30 polygons sample sites were selected non-randomly from each polygon (i.e. a 100% sample).

A total of 512 ground sampling sites were developed from a total of 21 vegetation and land cover classes which are represented on both vegetation maps.

Using GIS tools, an ASCII file was generated with ground coordinates representing each of these sites. The 512 sets of coordinates were appropriately re-formatted and directly downloaded as waypoints in three North American Rockwell PLGR GPS receivers.

During the week of August 4, 1997 three field crews of two persons each worked together at the monument in a coordinated effort to identify vegetation/cover types at each of the sites. The field crews had a paper map showing the location of the plots and the polygon boundaries (but not attributes) overlaid on topographic data. One team member operated the GPS receiver to navigate to the site, and the other identified the vegetation/cover type and provided a general physical description of the site environs. Sites were considered to be circular with a radius of 50 m. from the coordinate point. Where 2 or more vegetation/cover types occurred, or there was a mosaic of types, all were described within the 50 m. radius of the site coordinate.

Upon completion of the accuracy assessment field work, field teams were unable to access 9 sites, and 9 additional ones did not fit within the vegetation classification scheme, leaving a total of 494 sites for comparison with vegetation/cover classes in both of the vegetation maps.

These accuracy assessment data were then applied to each of the two vegetation maps after grouping classes of each to bring them into common agreement. An explanation of the groupings is provided in the metadata description for each individual map.

A preliminary accuracy assessment analysis was completed on the two spatial databases, comparing the accuracy assessment classes with the spatial data. Neither map met the USGS-NPS Vegetation Mapping Program minimum standards of classification accuracy of 80%. Analysis of the contingency tables for the maps showed accuracy per class of 5- - 60%.

The following possibilities exist which could explain why the accuracy assessment figures are not up to the program standards of 80%

      a.   The classes were mapped incorrectly

      b.   The accuracy assessment sites were described/identified incorrectly

      c.   Geographic locational errors caused confusion with a neighboring type

      d.   Problems in development of the classification system and keys leaving types which are not described or mapped, but really exist in the field.

      e.   The ground type actually changed between the time of mapping (photo acquisition date and mapper field checking) and the time of accuracy assessment field data collection.

      f.   Photo interpreters made different estimates of woodland/shrub canopy densities, resulting in different classes.

Reasons "e" and "f" are probably the primary causes of the low AA results, and that d, c, b and a, may all be true but to a much lesser extent. Both BOR and ESRI employed competent photo interpreters who spent significant time in the field making comparisons of vegetation types with the same aerial photographs. Although wrong identification of vegetation classes certainly is possible, there is general agreement between accuracy figures between the maps. With some exceptions certain classes were consistently high or low in accuracy. So either both maps were jointly wrong, or there was an error in identifying the type by the AA crew, or phenological differences may have occurred.

A meeting was held in February 1998 to resolve the problems between the two spatial databases and the accuracy assessment data. Attendees included the primary photointerpreters from AIS and BOR, the Park natural resources manager, a representative from the NPS Prairie Park Cluster Office, and representatives from CBI, and the NPS I&M program.

AIS performed the changes to the databases that were agreed to by the participants at the meeting. The changes were:

A Criteria/Crosswalk Analysis
    •.The criteria clarifications resulting from the Denver meeting of February 19 will be applied to a new crosswalk for the purpose of identifying specific polygons for photo interpretive analysis. The criteria clarifications are summarized below:

    •.Add Pinus ponderosa savanna community association defined as 10-25% coniferous trees, <10% of trees Juniperus scopulorum, >90% of trees Pinus ponderosa.

●.Adjust break between trees and shrubs, and shrubs and herbaceous. For trees, if have 25% trees, or thereabout ±5%, code as tree community rather than shrub community. If have 25% shrubs or thereabout ±5%, code as shrub community rather than herbaceous community.

●.Re-evaluate Andropogon hallii-Calamovilfa longifolia Herbaceous Vegetation community association. There may be more area identified as such than should be. Some of these areas may be Stipa comata-Bouteloua gracilis-Carex filifollia Herbaceous Vegetation community association.

●.Re-evaluate the area of the park between the Gering Canal and the railroad right-of-way for Pascopyrum smithii Herbaceous Vegetation vs. Eroding Great Plains Slopes Sparse Vegetation, Stipa comata-Bouteloua gracilis-Carex filifolia Herbaceous Vegetation vs. Andropogon hallii-Calamovilfa longifolia Herbaceous Vegetation, and Pascopyrum smithii Herbaceous Vegetation vs. Symphoricarpos occidentalis Shrubland.

●.Re-evaluate Rock Outcrop/Prairie Mosaic areas for >25% herbaceous cover. These areas should be mapped as Stipa comata-Bouteloua gracilis-Carex filifolia Herbaceous Vegetation.

The photo signature code table contains information on sparse or rare tree, sparse or rare shrub situations, and taxa that can be used to flag polygons for photo interpretive analysis. The photo signature code table will be used to create a new crosswalk table that will serve as a means of producing an interim working vegetation map.

Data Processing

The crosswalk table information will be input into an INFO relate table that will link the photo signature to the community association. Plot AMLs will be written to create interim working products. The interim working vegetation map products will include community associations, photo signature polygons, photo signature codes, point plot site locations, point observation site locations, and point accuracy assessment site locations. These products will be produced at the photo scale of 1:12,000, and at a larger scale for legibility.

Photo Interpretation Analysis

The polygons that were identified for photo interpretive analysis through the crosswalk will be analyzed for their proper community association assignment based on the new criteria. In addition, a regional photo interpretive evaluation will be done for two areas.

The area of the park between the Gering Canal and the railroad right-of-way will be evaluated for Pascopyrum smithii Herbaceous Vegetation vs. Eroding Great Plains Slopes Sparse Vegetation, Stipa comata-Bouteloua gracilis-Carex filifolia Herbaceous Vegetation vs. Andropogon hallii-Calamovilfa longifolia Herbaceous Vegetation, and Pascopyrum smithii Herbaceous Vegetation vs. Symphoricarpos occidentalis Shrubland. The bluff areas of the park mapped as Rock Outcrop/Prairie Mosaic areas will be evaluated for >25% herbaceous cover. These areas should be mapped as Stipa comata-Bouteloua gracilis-Carex filifolia Herbaceous Vegetation.

Other Analyses

The revised vegetation map will be compared with the point site information. This analysis will be documented. The site information includes:

- .Plot site information
- .Observation site information
- .PI field site information
- .Accuracy assessment site information

As additional check for further analyses, the revised vegetation map will be generally compared with the BOR map to see if there are any other areas which may require adjustment.

Final Revision, QC, and Processing

All revisions to the interim vegetation map will be identified and changes made to the digital file. Corresponding modifications to the Height, Density, and Pattern layers will also be identified and changed. A new refined vegetation map will be plotted and will undergo quality control through visual check against the photography. Any final changes will be made to the file. A new file and hardcopy vegetation map will be delivered to BRD. The file will include Photo signature code, Alliance/Community Association, Height, Density, Pattern, Land Use.

A final spatial database was delivered to BRD in July 1998, along with a spreadsheet comparing the spatial data to the accuracy assessment data. Again, the accuracy levels did not come close to 80% for most classes.

At this point, a detailed analysis was undertaken by CBI scientists to resolve the discrepancies between the accuracy assessment data and the spatial data. All accuracy assessment points that did not agree with the spatial data were plotted on a paper map, and the aerial photographs and AA field forms were examined to try to determine which one was correct. There were 3 types of disagreement that existed: 1) the accuracy assessment point was in error, 2) the photointerpretation was in error, and 3) no obvious error could be discerned in either data source. Where there was obvious error in the accuracy assessment data, that code was immediately changed. The error was usually caused by locational error in the GPS data or by the addition of a sparse forested herbaceous type, which did not exist during the accuracy assessment. Examples of obvious AA error include a point in a sparse forested herbaceous type that was called an herbaceous type in the AA data, or an open water polygon classed as cottonwood.

There were other, more subtle disagreements that required further examination of the data. These were cases of disagreements between herbaceous grassland associations, or sparsely vegetated herbaceous associations. In most cases these were settled in favor of the photointperpreation data, since the AA data was based on a small subset of the entire polygon. There were a few cases where the disagreement was settled in favor of the AA data, and a few cases where there was not sufficient evidence to resolve the disagreement.

The final data are presented in Table 1, and the contingency matrix is presented in Table2.

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
1	628	7	1	7	606,827.5	4,632,772.0
2	632	14	14	0	607,907.5	4,632,766.0
3	628	7	7	1	606,791.5	4,632,732.0
4	636	2	2	14	607,968.5	4,632,700.0
5	636	2	2	14	607,945.5	4,632,696.0
6	661	2	2	0	608,019.5	4,632,602.0
7	694	12	12	7	607,076.5	4,632,573.0
8	707	1	1	12	607,799.5	4,632,552.0
9	694	12	12	1	607,104.5	4,632,543.0
10	707	1	1	0	607,838.5	4,632,534.0
11	716	12	12	1	607,108.5	4,632,494.0
12	702	14	14	1	607,696.5	4,632,488.0
13	743	16	16	18	608,073.5	4,632,457.0
14	735	21	1	21	607,440.5	4,632,349.0
15	770	2	2	12	607,600.5	4,632,344.0
16	769	22	2	0	607,502.5	4,632,276.0
17	805	15	15	0	606,049.5	4,632,273.0
18	805	15	15	0	606,084.5	4,632,253.0
19	844	12	12	0	606,425.5	4,632,144.0
20	899	12	12	0	606,073.5	4,632,015.0
21	890	19	19	12	606,174.5	4,631,866.0
22	971	12	12	0	606,185.5	4,631,828.0
26	1064	12	12	0	606,183.5	4,631,557.0
27	1246	7	7	1	605,616.5	4,631,216.0
28	1247	19	19	0	606,999.5	4,631,159.0
29	1266	1	1	0	606,369.5	4,631,155.0
30	1324	12	12	19	606,362.5	4,631,055.0
31	600	18	18	0	608,083.5	4,632,643.0
32	678	2	2	0	607,946.5	4,632,595.0
33	700	18	18	2	607,658.5	4,632,477.0
34	769	22	2	0	607,460.5	4,632,306.0
35	1105	19	19	12	606,566.5	4,631,498.0
36	1113	12	2	12	606,533.5	4,631,420.0
37	1112	2	2	0	606,581.5	4,631,385.0
38	1197	2	12	2	606,260.5	4,631,325.0
39	1168	12	12	0	606,301.5	4,631,317.0
40	1165	12	12	2	606,564.5	4,631,246.0
41	1266	1	19	2	606,367.5	4,631,191.0
42	1339	12	12	2	605,979.5	4,631,064.0
43	1339	12	12	0	605,985.5	4,631,058.0
44	1346	12	12	0	605,448.5	4,630,982.0
45	1395	1	1	0	606,275.5	4,630,945.0
46	1029	16	16	0	606,713.5	4,630,938.0
47	1297	15	15	0	606,154.5	4,630,924.0
48	1392	12	12	2	605,462.5	4,630,873.0
49	1280	12	12	0	605,893.5	4,630,847.0
50	1280	12	2	12	605,865.5	4,630,842.0
51	1388	2	2	12	605,970.5	4,630,835.0
52	1426	2	2	0	606,578.5	4,630,802.0
53	1440	14	14	2	606,729.5	4,630,794.0
54	1431	18	18	2	604,700.5	4,630,792.0
55	1498	2	2	0	606,711.5	4,630,754.0
56	1494	16	16	2	606,183.5	4,630,719.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
57	1517	22	15	2	606,660.5	4,630,711.0
58	1476	15	15	2	605,817.5	4,630,705.0
59	1517	22	22	0	606,666.5	4,630,694.0
60	1478	12	12	0	606,808.5	4,630,674.0
61	21	13	13	4	606,159.5	4,635,153.0
73	64	3	3	0	607,297.5	4,634,544.0
76	72	3	7	3	607,554.5	4,634,440.0
85	193	3	3	7	608,988.5	4,634,052.0
88	318	11	11	0	608,227.5	4,633,658.0
89	329	16	16	11	608,249.5	4,633,606.0
91	919	12	12	0	608,142.8	4,631,932.0
95	34	13	13	0	606,553.4	4,634,864.0
96	62	17	17	17	607,497.9	4,634,581.0
97	62	17	17	0	607,765.9	4,634,499.0
104	160	11	11	16	608,016.5	4,634,095.0
105	275	5	5	12	608,054.5	4,633,843.0
106	244	5	5	0	607,098.5	4,633,830.0
109	380	5	5	0	606,980.5	4,633,461.0
111	517	5	5	0	607,511.5	4,633,047.0
112	532	5	5	0	607,542.5	4,632,955.0
114	595	12	11	12	608,240.5	4,632,773.0
115	611	5	5	0	605,963.5	4,632,771.0
116	641	5	5	11	606,411.5	4,632,680.0
117	649	5	5	10	605,968.5	4,632,674.0
118	721	12	12	11	608,411.5	4,632,416.0
119	760	14	5	12	608,252.5	4,632,226.0
120	815	14	14	12	606,637.5	4,632,203.0
121	828	12	12	0	608,260.5	4,632,171.0
122	849	12	12	0	608,262.5	4,632,162.0
124	842	15	15	0	606,623.5	4,632,024.0
125	928	11	11	0	608,077.5	4,631,852.0
126	995	11	11	0	608,226.5	4,631,667.0
127	1044	10	10	0	605,900.5	4,631,626.0
128	1044	10	10	0	605,782.5	4,631,592.0
129	1137	21	21	0	604,551.5	4,631,421.0
130	1256	12	12	0	604,923.5	4,631,230.0
131	1327	15	15	7	605,575.5	4,631,014.0
132	1376	7	5	7	608,089.5	4,630,918.0
133	1640	12	5	12	605,954.5	4,630,345.0
134	1143	12	12	0	606,901.2	4,631,416.0
135	1235	6	6	0	606,884.5	4,631,231.0
136	1108	15	15	19	606,985.0	4,631,092.0
137	1347	7	7	6	606,942.5	4,631,039.0
138	1029	16	16	15	606,800.7	4,631,222.0
139	1254	6	15	6	606,753.8	4,631,180.0
140	1325	22	15	11	606,751.5	4,631,079.0
141	1325	22	2	15	606,732.6	4,630,978.0
142	1454	19	19	0	607,274.3	4,630,843.0
143	1709	18	18	0	608,032.0	4,630,098.0
144	1697	14	14	0	608,140.7	4,630,077.0
145	911	12	12	1	606,889.6	4,631,922.0
146	939	15	15	0	606,923.7	4,631,801.0
147	1002	7	7	19	607,061.8	4,631,720.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
148	54	20	20	4	608,118.5	4,634,302.0
150	217	19	19	7	607,840.5	4,633,996.0
151	177	7	7	10	608,955.5	4,633,946.0
152	257	7	7	0	607,019.5	4,633,920.0
154	272	16	16	0	609,001.5	4,633,759.0
155	437	7	7	12	607,964.5	4,633,310.0
156	471	16	16	12	608,000.5	4,633,258.0
157	703	12	12	7	607,408.5	4,632,502.0
158	763	7	12	7	606,907.5	4,632,369.0
159	587	21	21	0	606,094.5	4,632,321.0
161	844	12	12	0	606,448.5	4,632,119.0
162	895	19	19	0	606,554.5	4,632,015.0
163	956	11	11	19	607,264.5	4,631,884.0
164	1028	7	7	0	607,898.5	4,631,628.0
165	937	11	11	0	608,195.5	4,631,623.0
166	1014	11	11	7	607,782.5	4,631,586.0
167	1067	12	12	0	607,857.5	4,631,560.0
168	1091	12	12	0	607,850.5	4,631,513.0
169	1100	11	11	0	608,344.5	4,631,505.0
172	1124	12	12	7	607,889.5	4,631,415.0
173	1275	19	12	19	604,988.5	4,631,062.0
174	1450	7	7	12	608,009.5	4,630,875.0
175	1419	12	12	0	608,155.5	4,630,854.0
176	1584	12	19	12	607,980.5	4,630,539.0
177	1664	12	12	0	608,221.5	4,630,232.0
179	919	12	1	12	608,093.6	4,631,938.0
181	408	8	8	16	608,203.1	4,633,450.0
182	418	8	8	0	608,200.7	4,633,349.0
183	299	16	16	8	608,282.5	4,633,732.0
184	254	19	19	4	608,175.0	4,633,903.0
190	35	3	3	0	606,411.5	4,634,853.0
192	75	21	21	0	607,114.5	4,634,437.0
193	78	9	7	9	607,673.5	4,634,395.0
194	113	7	4	7	607,956.5	4,634,296.0
196	159	21	21	0	606,855.5	4,634,163.0
197	167	9	9	0	606,234.5	4,634,121.0
198	158	9	9	0	606,744.5	4,634,120.0
199	178	9	9	0	606,797.5	4,634,095.0
200	204	11	11	0	607,459.5	4,634,064.0
201	178	9	11	0	606,751.5	4,634,001.0
202	302	11	11	0	607,089.5	4,633,709.0
204	410	10	10	0	608,555.5	4,633,271.0
205	542	10	10	0	606,110.5	4,633,048.0
206	596	10	11	10	606,219.5	4,632,881.0
207	664	10	10	0	608,722.5	4,632,642.0
208	717	10	10	0	608,876.5	4,632,381.0
209	717	10	10	0	608,804.5	4,632,204.0
210	760	14	12	0	608,355.5	4,632,095.0
211	870	11	11	0	607,570.5	4,632,069.0
212	864	11	11	0	607,611.5	4,632,057.0
213	941	12	12	0	608,342.5	4,631,916.0
214	1014	11	11	10	607,736.5	4,631,728.0
215	1003	11	11	0	607,257.5	4,631,664.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
216	1021	11	11	0	607,603.5	4,631,660.0
217	1069	21	21	11	607,316.5	4,631,538.0
218	1232	10	11	10	608,542.5	4,631,225.0
219	1433	12	12	0	608,433.5	4,630,808.0
220	168	10	10	0	606,507.4	4,633,910.0
221	488	10	10	0	606,148.6	4,633,171.0
222	542	10	10	0	606,013.4	4,632,963.0
223	646	10	10	5	606,179.8	4,632,646.0
224	717	10	10	0	608,752.3	4,632,332.0
225	866	10	10	0	608,755.6	4,632,000.0
226	1121	10	11	10	608,538.6	4,631,418.0
227	1216	10	11	10	608,555.1	4,631,254.0
228	1594	10	10	0	608,292.0	4,630,567.0
229	1650	5	5	0	609,005.5	4,630,156.0
230	903	11	11	0	608,502.2	4,631,930.0
231	950	10	10	0	608,818.4	4,631,790.0
232	132	19	19	0	608,135.5	4,634,250.0
233	148	12	12	0	608,082.5	4,634,200.0
234	75	21	21	0	607,947.5	4,634,183.0
235	251	19	19	12	608,429.5	4,633,898.0
236	244	5	5	0	607,142.5	4,633,700.0
238	384	7	7	16	608,745.5	4,633,519.0
239	435	19	19	12	608,443.5	4,633,335.0
240	328	12	12	11	606,281.5	4,633,306.0
241	469	12	12	0	606,247.5	4,633,248.0
242	515	12	12	0	606,388.5	4,633,070.0
243	556	5	5	0	605,580.5	4,632,988.0
244	893	11	11	0	607,914.5	4,632,058.0
245	999	12	12	0	607,862.5	4,631,764.0
246	1051	10	10	0	607,172.5	4,631,589.0
247	1048	19	19	11	608,080.5	4,631,572.0
248	1059	11	11	0	608,298.5	4,631,561.0
250	1110	10	10	0	607,399.5	4,631,348.0
251	1110	10	7	12	607,443.5	4,631,305.0
252	1251	10	11	0	607,944.5	4,631,240.0
253	1251	10	11	7	607,952.5	4,631,210.0
254	1251	10	11	7	607,973.5	4,631,209.0
255	1265	12	12	0	607,712.5	4,631,181.0
256	1296	12	12	0	607,456.5	4,631,099.0
257	587	21	21	12	608,076.5	4,631,088.0
258	1251	10	11	0	608,147.5	4,631,086.0
259	1345	10	21	10	608,243.5	4,631,051.0
260	1336	7	7	11	607,627.5	4,631,030.0
261	1356	12	12	0	607,962.5	4,631,010.0
262	145	5	5	0	607,788.5	4,634,193.0
263	138	12	12	0	607,775.5	4,634,071.0
264	191	12	12	0	607,776.5	4,633,997.0
265	248	16	16	12	608,829.5	4,633,846.0
266	252	12	12	0	608,376.5	4,633,833.0
267	359	12	12	0	606,571.5	4,633,601.0
268	371	12	12	0	606,466.5	4,633,562.0
269	367	11	11	5	607,028.5	4,633,530.0
270	408	8	8	16	608,193.5	4,633,378.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
271	519	12	12	0	606,505.5	4,633,113.0
272	487	19	19	0	606,075.5	4,633,099.0
273	508	19	19	0	605,870.5	4,633,050.0
274	524	10	11	10	608,389.5	4,633,044.0
275	602	5	5	0	606,772.5	4,632,851.0
276	909	7	7	1	606,801.5	4,632,015.0
277	939	15	15	19	606,812.5	4,631,941.0
278	1062	9	9	0	605,677.5	4,631,587.0
279	1052	12	12	11	606,308.5	4,631,545.0
280	1080	19	19	12	606,065.5	4,631,430.0
281	1189	2	12	2	606,591.5	4,631,343.0
282	1098	12	12	0	605,792.5	4,631,342.0
283	1280	12	12	0	605,851.5	4,631,057.0
284	1263	12	12	0	607,068.5	4,631,003.0
285	1361	9	9	0	605,309.5	4,630,935.0
286	1449	12	12	1	606,294.5	4,630,844.0
287	1422	12	12	0	607,385.5	4,630,844.0
288	1376	7	7	0	608,025.5	4,630,698.0
289	1603	12	15	12	605,066.5	4,630,460.0
290	1624	12	12	0	607,820.5	4,630,456.0
291	1721	12	12	0	608,700.5	4,630,063.0
293	13	13	4	13	606,092.3	4,635,465.0
301	77	13	13	0	608,034.9	4,634,449.0
304	179	13	13	20	608,855.8	4,634,103.0
308	490	7	7	1	607,908.5	4,633,097.0
309	576	19	11	19	607,282.5	4,632,907.0
310	665	12	12	11	608,275.5	4,632,669.0
312	725	14	14	0	608,174.5	4,632,468.0
313	718	12	12	14	607,757.5	4,632,465.0
314	764	14	14	2	607,289.5	4,632,379.0
315	769	22	14	2	607,575.5	4,632,376.0
316	760	14	14	0	608,222.5	4,632,322.0
317	786	11	12	0	608,127.5	4,632,305.0
318	786	11	11	0	608,072.5	4,632,236.0
319	801	14	14	0	608,374.5	4,632,211.0
320	814	12	12	18	607,895.5	4,632,193.0
321	817	19	19	12	608,435.5	4,632,090.0
322	867	18	18	0	607,177.5	4,631,772.0
323	1029	16	16	0	606,748.5	4,631,562.0
324	1068	15	15	19	606,974.5	4,631,537.0
325	1425	2	2	0	606,645.5	4,630,867.0
326	1461	2	2	12	604,865.5	4,630,846.0
327	1471	18	18	0	605,254.5	4,630,772.0
328	1500	2	2	0	606,976.5	4,630,737.0
329	1532	18	18	0	604,955.5	4,630,675.0
330	1545	22	12	0	607,153.5	4,630,618.0
331	1569	14	14	0	606,429.5	4,630,579.0
332	1568	12	12	0	605,461.5	4,630,569.0
333	1553	14	14	0	605,942.5	4,630,541.0
334	1637	12	12	0	606,324.5	4,630,430.0
335	1649	12	12	0	607,487.5	4,630,400.0
336	1680	14	14	0	607,462.5	4,630,238.0
337	1680	14	14	0	607,541.5	4,630,171.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
338	450	12	12	19	608,344.5	4,633,240.0
339	416	19	12	19	607,263.5	4,633,139.0
340	567	19	19	11	607,675.5	4,632,973.0
341	431	12	12	0	607,367.5	4,632,935.0
342	562	12	12	0	607,452.5	4,632,935.0
343	572	1	12	1	607,551.5	4,632,892.0
344	572	1	12	1	607,527.5	4,632,884.0
345	575	14	14	2	607,985.5	4,632,880.0
347	688	15	15	12	608,459.5	4,632,587.0
349	754	12	12	7	606,683.5	4,632,453.0
350	785	12	12	7	606,265.5	4,632,328.0
351	819	12	12	18	607,652.5	4,632,202.0
352	832	14	14	0	607,231.5	4,632,059.0
353	966	18	18	0	607,114.5	4,631,835.0
354	958	12	12	14	607,008.5	4,631,823.0
355	983	15	15	0	606,688.5	4,631,759.0
356	1082	10	10	0	607,061.5	4,631,470.0
357	1182	12	12	0	605,424.5	4,631,296.0
358	1252	14	14	7	607,367.5	4,631,237.0
359	1236	12	15	12	604,566.5	4,631,202.0
360	1266	1	2	0	606,389.5	4,631,086.0
361	1148	15	15	0	604,754.5	4,630,986.0
362	1391	2	19	2	604,806.5	4,630,953.0
363	1612	15	15	0	606,458.5	4,630,512.0
364	1660	15	15	0	605,733.5	4,630,342.0
365	1703	15	15	0	607,588.5	4,630,136.0
366	1740	7	7	0	608,932.5	4,629,890.0
367	1754	16	16	0	608,886.5	4,629,824.0
368	68	19	19	12	607,195.5	4,634,452.0
369	98	19	19	0	607,053.5	4,634,345.0
370	98	19	19	0	607,099.5	4,634,309.0
371	210	12	12	0	608,359.5	4,634,043.0
372	223	12	12	0	608,000.5	4,634,020.0
373	75	21	21	0	608,676.5	4,633,977.0
374	75	21	21	7	608,791.5	4,633,959.0
375	75	21	21	11	608,838.5	4,633,959.0
376	221	19	19	0	608,656.5	4,633,944.0
377	215	12	12	19	607,913.5	4,633,939.0
378	220	11	11	7	607,751.5	4,633,919.0
379	221	19	19	0	608,601.5	4,633,914.0
380	242	12	12	19	608,214.5	4,633,891.0
381	215	12	11	12	607,981.5	4,633,886.0
382	274	11	11	0	607,980.5	4,633,784.0
383	299	16	16	0	608,467.5	4,633,624.0
384	299	16	16	0	608,332.5	4,633,574.0
385	493	12	12	11	607,889.5	4,633,199.0
386	809	14	14	0	607,289.5	4,632,258.0
387	933	12	11	12	607,437.5	4,631,907.0
388	966	18	18	0	607,185.5	4,631,798.0
389	982	15	15	0	606,820.5	4,631,693.0
390	1108	15	15	0	606,926.5	4,631,485.0
391	1108	15	15	0	606,914.5	4,631,465.0
392	1247	19	19	0	607,091.5	4,631,156.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
393	1287	12	12	0	606,065.5	4,631,107.0
394	1536	16	16	2	605,978.5	4,630,692.0
395	1522	2	2	15	606,099.5	4,630,653.0
396	1709	18	18	19	608,034.5	4,630,126.0
397	1710	12	12	19	607,416.5	4,630,103.0
398	5	21	21	20	605,926.9	4,635,575.0
399	4	21	21	0	606,098.7	4,635,288.0
400	24	9	9	0	605,970.1	4,635,290.0
401	30	20	20	0	606,252.0	4,635,047.0
402	33	4	4	3	606,422.6	4,634,913.0
403	41	3	3	0	606,702.0	4,634,804.0
405	57	17	17	0	607,292.0	4,634,585.0
406	59	3	3	0	607,127.2	4,634,487.0
407	62	17	17	3	607,678.7	4,634,516.0
408	72	3	3	0	607,606.7	4,634,474.0
409	101	17	7	17	608,044.3	4,634,306.0
410	93	7	7	3	607,645.7	4,634,378.0
411	84	8	8	0	607,943.9	4,634,429.0
412	54	20	20	0	608,381.5	4,634,210.0
413	203	7	7	0	608,949.9	4,634,026.0
414	636	2	22	0	607,846.8	4,632,721.0
415	612	18	18	14	607,616.0	4,632,773.0
416	648	14	14	0	607,726.8	4,632,643.0
418	692	18	18	0	608,326.6	4,632,557.0
419	801	14	14	12	608,365.7	4,632,283.0
420	702	14	14	0	607,690.3	4,632,519.0
421	747	12	12	2	607,548.2	4,632,476.0
422	752	18	18	0	607,283.5	4,632,465.0
423	764	14	14	1	607,260.1	4,632,343.0
424	769	22	22	0	607,486.9	4,632,220.0
425	777	14	14	0	607,669.4	4,632,287.0
426	777	14	14	0	607,819.4	4,632,262.0
427	818	14	14	0	608,017.6	4,632,179.0
428	1639	18	18	0	606,280.8	4,630,390.0
429	1558	18	18	0	606,175.3	4,630,388.0
430	1611	12	12	0	606,001.1	4,630,510.0
431	1591	1	1	0	606,139.7	4,630,547.0
433	1407	12	18	12	605,272.8	4,630,775.0
434	1680	14	14	19	607,345.2	4,630,220.0
435	1709	18	18	15	608,084.3	4,630,130.0
436	1592	18	18	0	606,604.1	4,630,393.0
437	39	3	3	13	606,669.5	4,634,814.0
438	39	3	3	0	606,632.5	4,634,795.0
439	40	19	19	3	606,713.5	4,634,769.0
440	95	19	19	0	607,154.5	4,634,344.0
441	75	21	21	10	607,376.5	4,634,338.0
442	96	11	11	0	607,242.5	4,634,316.0
443	98	19	12	0	607,118.5	4,634,279.0
444	111	19	19	5	607,093.5	4,634,241.0
445	95	19	19	5	607,255.5	4,634,231.0
446	139	5	5	0	607,808.5	4,634,209.0
447	119	12	12	0	607,336.5	4,634,195.0
448	139	5	5	12	607,733.5	4,634,191.0

AA ID	Map ID	Map Code	AA Prim	AA 2nd	UTM X	UTM Y
449	111	19	19	7	607,156.5	4,634,168.0
450	114	12	12	7	607,176.5	4,634,147.0
451	157	7	7	0	607,502.5	4,634,143.0
452	149	19	19	21	607,278.5	4,634,134.0
453	111	19	19	0	607,197.5	4,634,110.0
454	164	19	19	0	607,700.5	4,634,106.0
455	138	12	12	0	607,664.5	4,634,032.0
456	222	12	12	11	607,324.5	4,634,018.0
457	176	12	12	0	607,233.5	4,634,000.0
458	159	21	21	10	607,346.5	4,633,987.0
459	138	12	12	0	607,703.5	4,633,974.0
460	204	11	11	0	607,340.5	4,633,957.0
462	542	10	10	0	606,066.5	4,633,014.0
463	890	19	19	1	606,142.5	4,631,967.0
464	907	12	12	0	606,235.5	4,631,884.0
465	907	12	12	0	606,206.5	4,631,883.0
469	9	21	8	21	605,891.7	4,635,513.0
470	4	21	21	0	606,008.6	4,635,571.0
471	13	13	13	0	606,105.0	4,635,554.0
480	117	3	3	17	608,303.1	4,634,261.0
484	12	20	20	8	605,946.5	4,635,457.0
485	23	9	21	9	606,018.5	4,635,324.0
486	68	19	19	0	607,145.5	4,634,450.0
487	75	21	21	11	607,323.5	4,634,405.0
488	115	10	10	0	606,394.5	4,634,300.0
489	177	7	7	10	608,972.5	4,633,945.0
490	253	16	16	0	609,080.5	4,633,909.0
492	204	11	11	0	607,278.5	4,633,872.0
494	159	21	21	11	607,714.5	4,633,715.0
495	325	11	11	0	607,744.5	4,633,702.0
497	420	21	21	0	608,746.5	4,633,020.0
498	556	5	5	0	605,575.5	4,632,926.0
499	720	7	7	0	605,973.5	4,632,492.0
500	779	12	12	10	606,282.5	4,632,176.0
501	895	19	7	0	606,514.5	4,631,992.0
502	927	12	1	12	606,730.5	4,631,838.0
503	1026	7	7	0	607,052.5	4,631,646.0
504	1075	11	11	0	607,277.5	4,631,528.0
505	1094	9	12	10	607,413.5	4,631,425.0
506	1251	10	10	12	608,108.5	4,631,107.0
507	1345	10	12	19	608,307.5	4,631,035.0
508	1401	21	21	0	608,496.5	4,630,948.0
511	1509	21	21	0	608,544.5	4,630,719.0
512	1510	21	21	0	608,520.5	4,630,717.0

		Observation Points																						User's Conf Interval		
																								Acc	-	+
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
Mapped	1	7																					7	100%	93%	107%
Points	2	2	16																				18	89%	74%	104%
	3			10	1																		11	91%	72%	110%
	4																						0	0%	0%	0%
	5					16																	16	100%	97%	103%
	6						2																2	100%	75%	125%
	7							25															25	100%	98%	102%
	8								4														4	100%	88%	113%
	9									8		1	1										10	80%	54%	106%
	10										27	4	1										32	84%	72%	96%
	11											28	1										29	97%	89%	104%
	12												98										98	100%	99%	101%
	13													6									6	100%	92%	108%
	14					1						1			25								27	93%	82%	103%
	15															19							19	100%	97%	103%
	16																15						15	100%	97%	103%
	17																	5					5	100%	90%	110%
	18																		17				17	100%	97%	103%
	19							1				1								35			37	95%	87%	102%
	20																				4		4	100%	88%	113%
	21																					24	24	100%	98%	102%
Total		9	16	10	1	17	2	26	4	8	27	33	103	6	25	19	15	5	17	35	4	24	406			
Prod Acc		78%	100%	100%	0%	94%	100%	96%	100%	100%	100%	85%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
Con Interval -		49%	97%	95%	-50%	82%	75%	88%	88%	94%	98%	73%	91%	92%	98%	97%	97%	90%	97%	99%	88%	98%				
Con Interval +		106%	103%	105%	50%	106%	125%	104%	113%	106%	102%	97%	99%	108%	102%	103%	103%	110%	103%	101%	113%	102%				

Code Description

1	Juniperus scopularum/Orysopsis micrantha Woodland	12	Stipa comata -Bouteloua gracilis/Carex filfolia Herb. Veg.
2	Pinus ponderosa/Juniperus scopularum Woodland	13	Riverine Sand Flats/Bars
3	Populus deltoides - (Salix amygdaloides)/Salix exigua Fldpln	14	Rock Outcrop/Prairie Mosaic
4	Salix exigua Shrubland	15	Siltstone - Clay Butte Sparse Vegetation
5	Andropogon halii --Calamovilfa longifolia Herbaceous Veg.	16	Open Bluff/Cliff & Eroding Great Plains Badlands Sparse Veg.
6	Cercocarpus montanus/Bouteloua curtipendula Shrubland	17	Andropogon gerardii -Calamagrostis canadensis - Helianthus g.
7	Symphoricarpus occidentalis Shrubland	18	Cliff/Rock Outcrop/Prairie Mosaic
8	Typha spp. -Equisetum hyemale/Carex spp. Seep Herbaceous	19	Eroding Great Plains Slopes Sparse Vegetation
9	Kochia scoparia/Bromus spp. Early Seral Community	20	Water
10	Mixed Grass Prairie (reseeded)	21	Unvegetated landuse / disturbance
11	Pascopyrum smithii Herbaceous Vegetation	22	Pinus ponderosa - Schizachyrium scoparium Wooded Herbaceous Vegetation