

# Grand Teton National Park Vegetation Mapping Project

Progress Report, 2002 Field Season

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## **Executive Summary**

The Wyoming Natural Diversity Database, Grand Teton National Park, NatureServe, and the Bureau of Reclamation are collaborating to create an inventory of National Vegetation Classification System plant associations present in Grand Teton National Park, and an updated vegetation map of the park. Field work for the Grand Teton National Park Vegetation Mapping Project is to be conducted over 3 summers. The first two summers are dedicated to vegetation data collection, and the third summer will be on-the-ground accuracy assessment of the preliminary vegetation map created by Bureau of Reclamation photo interpreters. This report describes the results of the first summer of vegetation data collection, problems of the 2002 field season and suggested solutions, and unforeseen costs associated with the project.

A total of 167 vegetation plots and 73 observation points were sampled during the 2002 field season. One hundred twenty-six vegetation types were classified to the association level. Forty-one types could only be classified to the alliance level or higher. Fifty-nine percent of the types considered likely to occur in Grand Teton National Park were sampled, which is higher than the 40% suggested by NatureServe for the first field season. NatureServe recommends that approximately three plots be sampled within each association. Primary emphasis for the 2003 field season should be placed on sampling the remaining 1-2 plots within associations sampled during 2002 and locating and sampling associations listed in the draft classification as either occurring or likely occurring in Grand Teton National Park. Habitat requirements of species that define the associations of interest and vegetation layers within a GIS should be used to determine potential locations of targeted associations.

## **Introduction**

The National Park Service, NatureServe, and Natural Heritage Programs are collaborating to create new or improved vegetation maps and inventories of plant associations present in National Parks. As a result, there will be two products of the Grand Teton National Park Vegetation Mapping Project: a list of plant associations and a park-wide vegetation map derived from aerial photo interpretation. Vegetation composition and cover data generated from field sampling will be used to create a list of plant associations in the Park, and will be used by Bureau of Reclamation personnel to aid interpretation of aerial photos. Plant association names often indicate both the dominant overstory and understory species. The vegetation map will likely indicate overstory plants species only, as understory species composition and cover will usually not be identifiable across the landscape in aerial photographs.

Field work for the Grand Teton National Park Vegetation Mapping Project is to be conducted over 3 summers. The first two summers are dedicated to vegetation data collection, and the third summer will be dedicated to on-the-ground accuracy assessment of the preliminary vegetation map created by the photo

interpreters. This report describes the results of the first summer of vegetation data collection, problems of the 2002 field season and suggested solutions, and unforeseen costs associated with the project.

## **Sampling Methods**

### **Field sampling methods**

Three different sampling methods were used: Modified-Whittaker sample plots, Detailed Descriptions, and Observation Points. Modified-Whittaker plots and Detailed Descriptions of vegetation were used to define vegetation types. Observation Points, along with the results of the other two methods, will be used by the photointerpreters to increase the accuracy of the vegetation map created from aerial photographs. Vegetation types were nearly always sampled using Modified-Whittaker plots (Stohlgren et al. 1995; Figure 1). Ranges of cover values are recorded and averaged for all herbaceous species present within the 10 microplots within the macroplot. After these cover values are recorded in the field, presence of any new species is documented (but not cover values) in successively larger plots. Reported cover values are the average values of the 10 microplots, which are then reported as the midpoint of cover ranges. Cover values of plant species present in the macroplot, but not present in any of the 10 microplots, are recorded as 'less than 1 percent.' The Modified-Whittaker sampling method was advocated by WYNDD, because it was believed to be a more accurate, quantitative, and reproducible method of vegetation cover estimation than estimates of cover across a macroplot alone. Detailed Descriptions of vegetation were done when Modified-Whittaker plots were not appropriate for certain vegetation, such as wetlands. In these cases, vegetation zones were described and illustrated on the data sheets, and cover values of individual species were estimated within each zone. In each case, there was a large, central zone ringed by 2-3 linear zones. Only cover values of plant species within the large, central zone were reported.

WYNDD conducted the vegetation sampling, along with 2 Park-hired personnel. The additional personnel were hired by the Park to help sample fuels at the same locations where vegetation was sampled for the vegetation mapping project. All crew members were trained to collect both vegetation cover data and fuels data to allow for maximum efficiency in the field. Fuels sampling methodology was directed by the Park, and fuels data will be analyzed by the Park and is not included here.

### **Provisional classification of plant associations**

Vegetation types were classified in a hierarchical fashion, beginning at the Formation Class level within the National Vegetation Classification. Formation Class categories are: Forest, Woodland, Shrubland, Dwarf-shrubland, Herbaceous, and Sparse Vegetation. Within Formation Classes, vegetation is classified into the appropriate alliance, usually based upon a minimum percentage of plant species present in the tallest stratum. Examples of alliances include the *Abies lasiocarpa* Forest Alliance, the *Artemisia tridentata* ssp. *vaseyana* Shrub Herbaceous Alliance, and the *Salix geyeriana* Seasonally Flooded Shrubland Alliance. Each alliance then contains a number of plant associations, which are the most basic

category of the National Vegetation Classification. Association names often reflect the dominant overstory and understory plant species of a vegetation type, although some associations are based on the presence of a particular species, regardless of whether it contributes the highest cover. Examples of associations within the *Abies lasiocarpa* Forest Alliance include the *Abies lasiocarpa/Arnica cordifolia* Forest Association and the *Abies lasiocarpa/Vaccinium membranaceum* Rocky Mountain Forest Association.

When possible, vegetation types were assigned an association name from the list of associations in the National Vegetation Classification System (NatureServe Explorer, 2001). Initially, a search for an association with the name of the dominant overstory and understory species present in the plot was conducted. At the time this report was submitted, only the dominant plant species of most plots had been identified; the rest will be identified by March 1, 2003. If an association of that name existed and either did not list a description of the type or the description indicated that this type was based on the dominant overstory and understory species, then the vegetation type was assigned to that association. In cases where a description of an association was provided and indicated that it was not based on a dominance type, but upon the presence of a different understory species, the species composition of the plot was checked for a match. If no association with the dominant plants was listed, then alternative sources were consulted when possible. An association name followed by a question mark indicates uncertainty concerning the accuracy of placing a given vegetation type in that association. Where there were no associations that adequately described the vegetation sampled, the association was listed as 'Unknown.' The result is a provisional list of plant associations sampled during the 2002 field season.

The provisional classification was compared to the preliminary list of plant associations, created before field sampling was conducted and containing a list of plant associations thought to possibly occur in Grand Teton National Park with varying degrees of probability.

## **Field Sampling Results and Discussion**

A total of 164 plots were sampled using Modified-Whittaker plots, and 3 were sampled using Detailed Descriptions (Tables 1 and 2). Seventy-three Observation Points were sampled. Sample plots and Observation Points were well-distributed across the park (Figure 2). Nearly all plots and observation points are very near trails and roads, as per the sampling protocol developed by NatureServe. The purpose of remaining in close proximity to trails and roads is to maximize productivity. About 5,400 plant specimens were collected. At the time this report was written, only the dominant plant species present in the plots had been identified.

### **Assignment of Association Names**

Ninety vegetation types were assigned an association with confidence, 36 were assigned an association with uncertainty, and 41 could not be assigned an association (Table 3). Whenever possible, associations named in the National Vegetation Classification System (NVCS) was considered the final

authority. Assigning existing association names in the NVCS based on dominance types to Forest and Woodland Formation Classes worked reasonably well. Assigning association names to deciduous Forest and Woodland Formation Classes was slightly more difficult than the coniferous Formation Classes. For example, there are so few *Populus balsamifera* associations described in the NVCS that it was sometimes difficult to find a match. Thus, data from these stands in GTNP may eventually be used to define currently unnamed associations to be added to the NVCS. *Populus tremuloides* forest and woodland plots were run through the Mueggler (1988) classification of aspen community types, data from which forms the basis of most of the aspen associations from this portion of the Rockies listed in the NVCS.

Currently named associations in the NVCS fit the shrubland Formation Class unevenly. Associations for *Artemisia cana* fit reasonably well. Associations for *Artemisia arbuscula* generally fit, with some problems. There are few associations that fit *Artemisia tridentata* ssp. *vaseyana* types, *Rhamnus* types, and *Salix* types well. *Rhamnus* types were classified using both the NVCS associations listed on the NatureServe website and the Wyoming Plant Community Classification (Jones, unpublished). *Salix* types were classified using a key to riparian and wetland types in the Shoshone National Forest (Walford et al. 1997), which is the basis for *Salix* types in this region listed in the NVCS. This key worked well, except for *Salix lemmonii* types and for the alpine willow types. Virtually no alpine willow associations have been described, so these types are classified only to the alliance level.

A mixture of sources was used to classify the herbaceous Formation Classes. For the graminoid-dominated types, using the NVCS associations as dominance types generally worked well, especially for the *Carex* and *Eleocharis* types. However, no associations listed in the NVCS fit burned stands well. This is an area of the classification that may improve as more post-fire data is collected and used to fill in these types in the classification. The NVCS classification fit the forb-dominated herbaceous types less well than the graminoid-dominated types. Descriptions of vegetation types in the Wyoming Plant Community Classification (Jones, unpublished), which are based mainly on data from Gregory (1983), were mostly used to describe the forb-dominated herbaceous associations. Many of these types are dominated by very common species, such as *Eriogonum*, and identification of these associations is likely more often based on the presence of specific species, regardless of whether they are dominant or not. Thus, identification of the other species in the plots may enable us to place these types in the correct associations.

Wetland types, which are considered Herbaceous Floating Rooted Vegetation in the NVCS, did not fit well into currently named associations. No *Menyanthes*-dominated types or *Nuphar*-dominated types have been named in the western U.S.

Associations in the sparse vegetation Formation Class are poorly defined in the NVCS. We placed these types in the lowest level of the classification possible.

### **Associations Documented in Grand Teton National Park**

WYNDD sampled a minimum of 82 associations (Tables 1 and 2). Ninety plots were classified to the association level, and 36 plots could only be classified to the alliance level (Table 3). Classification to

the alliance level resulted from one of two reasons: Either no association matching the vegetation type sampled has been named in the NVCS, or the vegetation type sampled may belong to an association that is not based on dominance types. Classification of vegetation types into associations not based on dominance types cannot be completed until after March 1, 2003, when the approximately 5,000 plant species that were not dominant have been identified. Fourteen plots could only be assigned to the alliance level with uncertainty, and 13 could only be classified at a higher level within the NVCS, or there were no types currently listed in the NVCS that appeared to describe the plot data.

The preliminary classification was modified to omit associations classified as unlikely to occur in GTNP and to include new types sampled during 2002 (Table 2). Ninety-eight associations were omitted (but are still listed at the bottom of Table 2), and 37 types were added (Table 4). The minimum number of associations in the preliminary classification after the above changes is 138. The minimum number of associations sampled during 2002 is 82. Thus, at least 59% of the associations considered at least likely to occur in GTNP were sampled in 2002. This is higher than the 40% minimum recommended by NatureServe to be sampled during the first field season.

NatureServe recommends that approximately three plots be sampled within each association. Prior to the 2003 field season, associations in the modified preliminary list that were not sampled during 2002 should be further scrutinized for the likelihood of their occurrence in the Park. The best opportunity to do this may be the planned December 10, 2002 meeting, where representatives of the Park and WYNDD, who have travelled through much of the Park, will be present. Primary emphasis for the 2003 field season should be placed on sampling the remaining 1-2 plots within associations sampled during 2002 and locating and sampling associations remaining in the modified preliminary classification as either occurring or likely occurring in Grand Teton National Park. Habitat requirements of species that define the associations of interest and vegetation layers within a GIS should be used to determine potential locations of targeted associations.

## **Problems of the 2002 Field Season and Ideas to Improve Future Data Collection Efforts**

The following is a list of problems encountered during the 2002 field season, and suggested solutions. We feel that much high-quality data was collected during the 2002 field season. The Modified-Whitaker plots worked well, and the field crew learned quickly how to do all of the sampling. The suggestions listed below will, we feel, allow the field sampling to continue with the same rigorous collection of fuels data and vegetation information.

**Problem:** Tangled communications between the GTNP Technical Representative and the WYNDD Project Manager; instructions and opinions on the progress of the project passed directly between the

Technical Representative and crew members, without the knowledge of the crew leader. This resulted in confusion and poor morale.

**Suggestions:**

- (1) Although communication between the Park's Technical Representative (and other staff) on the one hand and crew members on the other can be useful and should be expected, discussions about methods, progress, and scheduling must take place between the Technical Representative and the WYNDD Project Manager, not between the Technical Representative and crew members.
- (2) All field-crew members should be hired and supervised by WYNDD, the entity ultimately responsible for conducting the field work. WYNDD is an independent contractor with the responsibility for accomplishing the field work, and WYNDD's project manager carries that responsibility on a day-to-day basis. To discharge this responsibility, she must be given the authority to supervise the field crews and make other final decisions after consultation with the Park. Park staff should continue to have the responsibility for designing the fuel sampling methods and to be closely involved in training the crews in fuel sampling.

**Problem:** Infrequent communication between the Technical Representative and the Project Manager. An example of this problem is the confusion and the acrimony that arose over WYNDD's decision to change the plot size and over the wishes of the field crew members to change the work schedule.

**Suggestions:**

- (1) Regular meetings between WYNDD's project manager and the Park's Technical Representative (and other staff as needed).
- (2) Hire an extra crew member to allow WYNDD's Project Manager time out of the field to attend meetings.

**Problem:** Ambiguity in the Task Agreement's wording that specifies the responsibilities and authority of the Park Service and WYNDD.

**Suggestion:**

- (1) Responsibility and authority for tasks in the field sampling need to be clearly stated in any future task agreement.

**Problem:** Fewer than the 230 plots specified in the agreement were sampled during the 2002 field season. Sampling proceeded more slowly than expected due to high species richness and intense fuel sampling.

**Suggestions:**

- (1) The total number of plots to be sampled on the project needs to be re-evaluated. The number of plots specified in the agreement seems to be based on the assumption that 200 plant associations will be found in the Park (Table 1). The draft classification of plant associations,

though, suggests that only 108 associations are likely to occur in the park. Three plots within each association likely to occur in the park results in 324 total plots, or 162 plots per field season.

- (2) Hire an additional field crew member to allow the Project Manager time for scouting potential sampling sites with the target plant associations.

**Problem:** Inability to arrange for use of backcountry cabins and caches. During 2002, arrangements for cabins and caches could not be made more than a week in advance, and there were communication problems when the Technical Representative was required to work away from the park.

**Suggestions:**

- (1) The Project Manager should be introduced, in person, to Park staff who are in charge of cabins and caches to facilitate communication. We understand that the Technical Representative has duties unrelated to this project that require him to travel out-of-state for unknown amounts of time. If this suggestion is untenable given the structure of the Park Service, we suggest that a back-up Park representative be designated to make arrangements when the Technical Representative is away from the park.
- (2) The sampling schedule and arrangements should be made earlier, perhaps before the field season.

**Other suggestions unrelated to specific problems:**

- (1) If it is decided that the same or a larger number of plots be sampled during the 2003 field season, then a third crew should be hired to do the additional sampling.
- (2) The report summarizing the results of the 2002 and 2003 field seasons should be due at a later date to allow for detailed plot analysis, consultation with NatureServe personnel, and time to allow all plants to be identified (not just the dominant species within each plot), which may aid in assigning some types to the correct association.
- (3) In dry year, stop sampling the third or fourth weeks of August.

A Park Service seasonal employee, Klara Varga, generally spent one day per week in the field with the vegetation mapping crew. A copy of Klara's report to Steve Haynes, her supervisor and Vegetation Branch Supervisor, is included in the Appendix of this report.

**Unforeseen Costs**

There are four areas in which expenditures deviated from the budget. First, the field crews worked more hours than predicted, resulting in higher costs for overtime. Second, the field crews traveled more miles than predicted, resulting in larger travel costs. Third, the larger-than-expected number of plant species in the sample plots produced an unexpectedly large number of specimens to be identified, and the

expense for this exceeded the budgeted amount. Last, the large number of plant species also translated into increased time required for data entry.

## Literature Cited

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Table 1. Classification of Vegetation Types Sampled During the 2002 Field Season into the NVCS.		
Vegetation Types	# of Plots	Plots Within Type
<b>FOREST CLASS</b>	<b>78</b>	
<b>Evergreen Forest Subclass</b>	<b>60</b>	
<b>Abies lasiocarpa Forest Alliance</b>	<b>32</b>	
Abies lasiocarpa / Arnica cordifolia Forest Association Association (CEGL000298)	2	201018, 202005
Abies lasiocarpa / Arnica latifolia Forest Association (CEGL000299)	1	201084
Abies lasiocarpa / Calamagrostis rubescens Forest Association (CEGL000301)	3	201007, 201008, 201052
Abies lasiocarpa / Carex geyeri Forest Association (CEGL000304)	3	201037, 202121, 202134
Abies lasiocarpa / Menziesia ferruginea Forest Association (CEGL000319)	1	201034
Abies lasiocarpa / Osmorhiza berteroi Forest Association (CEGL000323) ?	2	201017, 202091
Abies lasiocarpa / Ribes (montigenum, lacustre, inerme) Forest Association (CEGL000331) ?	2	202091, 202115
Abies lasiocarpa / Symphoricarpos albus Forest Association? Association (CEGL000337) ?	1	202070
Abies lasiocarpa / Thalictrum occidentale Forest Association (CEGL000338)	3	202008, 202057, 202136
Abies lasiocarpa / Vaccinium membranaceum Rocky Mountain Forest Association (CEGL000341)	7	201040, 201069, 201070, 202031, 202040, 202072, 202135
Abies lasiocarpa / Vaccinium scoparium Rocky Mountain Forest Association (CEGL000344)	2	201009, 201033
Association Unknown	5	201014, 201038, 201047, 201055, 202078
<b>Picea engelmannii Temporarily Flooded Forest Alliance</b>	<b>1</b>	
Picea engelmannii / Galium triflorum Forest Association (CEGL000365) ?	1	201097
<b>Pinus albicaulis Forest Alliance</b>	<b>5</b>	
Pinus albicaulis / Vaccinium scoparium Forest Association (CEGL000131)	5	202075, 202077, 202081, 202092, 202118
<b>Pinus contorta Forest Alliance</b>	<b>17</b>	
Pinus contorta / Calamagrostis rubescens Forest Association (CEGL000139)	4	201005, 201049, 201056, 202083
Pinus contorta / Carex geyeri Forest Association (CEGL000141)	2	202063, 202084
Pinus contorta / Shepherdia canadensis Forest Association (CEGL000163)	1	202137
Pinus contorta / Spiraea betulifolia Forest Association (CEGL000164)	3	201093, 201099, 202006

Pinus contorta / Vaccinium membranaceum Forest Association (CEGL000169)	1	202053
Table 1 (continued).		
Vegetation Types	# of Plots	Plots Within Type
<b>Pinus contorta Forest Alliance (continued)</b>		
Pinus contorta / Vaccinium scoparium Forest Association (CEGL000172)	4	201004, 201011, 202050, 202064
Association Unknown	2	201054, 202071
<b>Pseudotsuga menziesii Forest Alliance</b>	<b>5</b>	
Pseudotsuga menziesii / Calamagrostis rubescens Forest Association (CEGL000429)	2	202029, 202138
Pseudotsuga menziesii / Spiraea betulifolia Forest Association (CEGL000457) ?	1	202069
Pseudotsuga menziesii / Vaccinium membranaceum Forest Association (CEGL000466)	2	201073, 202030
<b>Mixed Evergreen - Deciduous Forest Subclass</b>	<b>3</b>	
<b>Picea pungens - Populus tremuloides Forest Alliance</b>	<b>1</b>	
Populus tremuloides - Picea pungens Forest Association (CEGL000535)	1	201027
<b>Populus tremuloides - Pinus contorta Forest Alliance</b>	<b>1</b>	
Populus tremuloides - Pinus contorta / Symphoricarpos oreophilus Forest Association (CEGL000538) ?	1	203005
<b>Populus tremuloides - Pseudotsuga menziesii Forest Alliance</b>	<b>1</b>	
Populus tremuloides - Pseudotsuga menziesii / Amelanchier alnifolia Forest Association (CEGL000543)	1	201071
<b>Deciduous Forest Subclass</b>	<b>15</b>	
<b>Populus angustifolia Temporarily Flooded Forest Alliance</b>	<b>3</b>	
Populus angustifolia / Rosa woodsii Forest Association (CEGL000653) ?	2	201085, 202101
Association Unknown	1	202111
<b>Populus balsamifera ssp. trichocarpa Temporarily Flooded Forest Alliance</b>	<b>1</b>	
Association Unknown	1	201089
<b>Populus tremuloides Forest Alliance</b>	<b>11</b>	
Populus tremuloides / Amelanchier alnifolia / Tall Forb Forest Association Association (CEGL000571)	1	202068
Populus tremuloides / Calamagrostis rubescens Forest Association (CEGL000575) ?	1	202065
Populus tremuloides / Pteridium aquilinum Forest Association (CEGL000597)? (Not described from this area)	1	202048
Populus tremuloides / Salix scouleriana Forest Association (CEGL000604) ?	1	202055
Populus tremuloides / Symphoricarpos oreophilus / Thalictrum fendleri Forest Association (CEGL000616)	2	201016, 202026

Table 1 (continued).		
Vegetation Types	# of Plots	Plots Within Type
<b>Populus tremuloides Forest Alliance (continued)</b>		
Populus tremuloides / Symphoricarpos oreophilus Forest Association (CEGL000610)	1	201104
Populus tremuloides / Tall Forb Forest Association (CEGL000618)	2	201051, 201053
Populus tremuloides / Thalictrum fendleri Forest Association (CEGL000619)	2	201030, 202086
<b>WOODLAND CLASS</b>	<b>10</b>	
<b>Evergreen Woodland Subclass</b>	<b>4</b>	
<b>Picea pungens Temporarily Flooded Woodland Alliance</b>	2	
Picea pungens / Equisetum arvense Woodland Association (CEGL000389)	2	201092, 202109
<b>Pinus albicaulis Woodland Alliance</b>	2	
Pinus albicaulis / Carex geyeri Woodland Association (CEGL000754)	1	202130
Pinus albicaulis / Luzula glabrata var. hitchcockii Woodland Association (CEGL000758)	1	202076
<b>Deciduous Woodland Subclass</b>	<b>6</b>	
<b>Populus angustifolia Temporarily Flooded Woodland Alliance</b>	5	
Populus angustifolia - Picea pungens / Alnus incana Woodland Association (CEGL000934) ?	2	203006, 203007
Populus angustifolia / Prunus virginiana Woodland Association (CEGL000651) ?	1	201086
Association Unknown	2	201098, 202102
<b>Populus balsamifera ssp. trichocarpa Temporarily Flooded Woodland Alliance</b>	1	
Association Unknown	1	201088
<b>SHRUBLAND CLASS</b>	<b>32</b>	
<b>Evergreen Shrubland Subclass</b>	<b>17</b>	
<b>Abies lasiocarpa Krummholtz Shrubland Alliance</b>	1	
Abies lasiocarpa Krummholtz Shrubland Association (CEGL000985)	1	202073
<b>Artemisia cana Shrubland Alliance</b>	2	
Artemisia cana ssp. viscidula / Festuca idahoensis Shrubland Association (CEGL001075) ?	2	202097, 202098

Table 1 (continued).		
Vegetation Types	# of Plots	Plots Within Type
Artemisia tridentata ssp. vaseyana Shrubland Alliance	14	
Artemisia tridentata ssp. vaseyana - Purshia tridentata / Pseudoroegneria spicata Shrubland Association (CEGL001032) ?	1	201100
Artemisia tridentata ssp. vaseyana / Pseudoroegneria spicata Shrubland Association (CEGL001030) ?	8	201010, 201019, 201021, 201022, 201032, 202002, 202019, 202022
Association Unknown	5	201002, 201020, 201023, 202001, 202027
<b>Deciduous Shrubland Subclass</b>	<b>15</b>	
Alnus incana Seasonally Flooded Shrubland Alliance	1	
Association Unknown	1	202107
Alnus incana Temporarily Flooded Shrubland Alliance	1	
Alnus incana / Mesic Graminoids Shrubland Alliance Association (CEGL001148)	1	202104
Rhamnus alnifolia Temporarily Flooded Shrubland Alliance	1	
Rhamnus alnifolia Shrubland Association (CEGL001132)	1	202105
Salix boothii Temporarily Flooded Shrubland Alliance	4	
Salix boothii / Carex utriculata Shrubland Association (CEGL001178)	1	201090
Salix boothii / Mesic Graminoids Shrubland Association (CEGL001181)	3	202114, 202123, 203003
Salix drummondiana Seasonally Flooded Shrubland Alliance	1	
Salix drummondiana / Carex utriculata Shrubland Association (CEGL002631)	1	202058
Salix eastwoodiae Seasonally Flooded Shrubland Alliance	1	
Salix eastwoodiae Shrubland Association (CEGL001194)	1	202131
Salix geyeriana Temporarily Flooded Shrubland Alliance	2	
Salix geyeriana / Mesic Graminoid Shrubland Association (CEGL001210)	2	201025, 202021
Salix lemmonii Temporarily Flooded Shrubland Alliance	3	
Association Unknown	3	201094, 202036, 202095
Salix wolfii Seasonally Flooded Shrubland Alliance	1	
Salix wolfii / Carex aquatilis Shrubland Association (CEGL001234) ?	1	203002
<b>DWARF-SHRUBLAND CLASS</b>	<b>3</b>	
<b>Deciduous Dwarf-shrubland Subclass</b>	<b>3</b>	
Salix arctica Dwarf-shrub Alliance	3	
Association Unknown	3	201074, 202129, 201075

Table 1 (continued).		
Vegetation Types	# of Plots	Plots Within Type
<b>HERBACEOUS CLASS</b>	<b>43</b>	
<b>Perennial Graminoid Vegetation Subclass</b>	<b>22</b>	
Artemisia arbuscula Dwarf-shrub Herbaceous Alliance	4	
Artemisia arbuscula / Festuca idahoensis Dwarf-shrub Herbaceous Vegetation Association (CEGL001409)	4	201006, 202035, 202049, 201029
Artemisia tridentata ssp. vaseyana Shrub Herbaceous Alliance	3	
Artemisia tridentata ssp. vaseyana / Festuca idahoensis Shrub Herbaceous Vegetation Association (CEGL001533) ?	3	201003, 201028, 202003
Carex (rostrata, utriculata) Seasonally Flooded Herbaceous Alliance	2	
Carex utriculata Herbaceous Vegetation Association (CEGL001562)	2	202100, 203001
Carex hoodii Herbaceous Alliance?	1	
Association Unknown	1	202059
Carex microptera Seasonally Flooded Herbaceous Alliance	2	
Carex microptera Herbaceous Vegetation Association (CEGL001792)	2	201015, 202099
Eleocharis palustris Seasonally Flooded Herbaceous Alliance	2	
Eleocharis palustris Herbaceous Vegetation Association (CEGL001833)	2	201096, 203004
Juncus drummondii Herbaceous Alliance	1	
Juncus drummondii - Carex spp. Herbaceous Vegetation Association (CEGL1905) ?	1	202132
Juncus parryi Herbaceous Alliance	1	
Association Unknown	1	202079
Medium-tall Sod Temperate Planted Grassland (formation)	1	
Bromus inermis ssp. inermis Meadow (not an NVCS type)	1	201001
Alliance Unknown	5	
Calamagrostis rubescens Herbaceous Vegetation (not an NVCS type)	1	201013
Carex geyeri Herbaceous Vegetation (not an NVCS type)	2	201012, 201036
Carex rossii Herbaceous Vegetation (not an NVCS type)	1	201050
Poa compressa Herbaceous Vegetation (not an NVCS type)	1	201101

Table 1 (continued).		
Vegetation Types	# of Plots	Plots Within Type
<b>Perennial Forb Vegetation Subclass</b>	<b>19</b>	
Caltha leptosepala Saturated Herbaceous Alliance	2	
Caltha leptosepala - Deschampsia cespitosa Herbaceous Vegetation Association (CEGL001955)	2	201042, 201082
Heracleum maximum Temporarily Flooded Herbaceous Alliance	1	
Heracleum maximum - Rudbeckia occidentalis Herbaceous Association Association (CEGL001940)	1	202004
Ligusticum filicinum Herbaceous Alliance	6	
Ligusticum filicinum - Delphinium X occidentale Herbaceous Vegetation Association (CEGL001941)	6	201045, 201046, 201078, 201081, 202061, 201079
Phlox pulvinata Herbaceous Alliance ?	2	
Phlox pulvinata - Trifolium dasyphyllum Herbaceous Vegetation Association (CEGL001980) ?	2	201041, 201103
Sibbaldia procumbens Herbaceous Alliance	2	
Sibbaldia procumbens - Polygonum bistortoides Herbaceous Vegetation Association (CEGL001933) ?	2	202074, 202080
Alliance Unknown	6	
Balsamorhize sagittata - Helianthella uniflora Herbaceous Vegetation (not an NVCS type)	1	202056
Association Unknown	5	201044, 201077, 202007, 202062, 202120
<b>Hydromorphic Rooted Vegetation Subclass</b>	<b>2</b>	
Nuphar lutea Permanently Flooded Herbaceous Alliance	1	
Association Unknown	1	201087
Permanently Flooded Temperate or Subpolar Hydromorphic Rooted Vegetation (formation)	1	
Association Unknown	1	201095
<b>SPARSE VEGETATION CLASS</b>	<b>1</b>	
<b>Talus Sparse Vegetation Subclass</b>	<b>1</b>	
Sparsely Vegetated High Mountain Talus - Scree Slopes (formation)	1	
Association Unknown	1	201102
<b>TOTAL NUMBER OF PLOTS</b>	<b>167</b>	

**Table 2. Preliminary list of types for Grand Teton NP, modified after the 2002 field season. Data are current as of November, 2002. Types considered unlikely to occur in the Park and that were not sampled during 2002 are at the end of the table.**

In GINP?	ELCODE	ASSOCIATION NAME	GRANK	STATES	DESC?	EGR?	ALLIANCE.NAME	REFERENCES	NUMBER OF 2002 PLOTS
<b>EVERGREEN (CONIFEROUS) FORESTS</b>									
Y	CEGL000294	Abies lasiocarpa / Acer glabrum Forest	G5	NM, UT, WY, ID			ABIES LASIOCARPA FOREST ALLIANCE	Alexander et al. 1987, Larson and Moir 1987, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0
Y	CEGL000295	Abies lasiocarpa / Actaea rubra Forest	G4?	UT, MT, WY, ID			ABIES LASIOCARPA FOREST ALLIANCE	Hansen et al. 1991, Hansen et al. 1995, Johnston 1987, Mauk and Henderson 1984, Padgett et al. 1988, Steele et al. 1983, Youngblood and Mauk 1985	0
Y	CEGL000298	Abies lasiocarpa / Arnica cordifolia Forest	G5	WY, ID, NV, MT			ABIES LASIOCARPA FOREST ALLIANCE	Hoffman and Alexander 1976, Loope 1969, Pfister et al. 1977, Reed 1969, Steele et al. 1981, Steele et al. 1983, Youngblood and Mueggler 1981	2
U	CEGL000299	Abies lasiocarpa / Arnica latifolia Forest	G4	WY, ID, UT, MT			ABIES LASIOCARPA FOREST ALLIANCE	Cooper and Pfister 1981, Johnston 1987, Steele et al. 1983	1
Y	CEGL000301	Abies lasiocarpa / Calamagrostis rubescens Forest	G4G5	WY, ID, UT, MT, WA, OR			ABIES LASIOCARPA FOREST ALLIANCE	Brotherson 1987, Cooper et al. 1987, Johnson and Simon 1987, Komarkova 1982, Komarkova et al. 1988, Mauk and Henderson 1984, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Williams and Lillybridge 1985, Williams and Smith 1990, Williams et	3
Y	CEGL000304	Abies lasiocarpa / Carex geyeri Forest	G5	MT, UT, OR, CO, WY, ID, WA			ABIES LASIOCARPA FOREST ALLIANCE	Alexander 1986, Hess and Alexander 1986, Johnson and Clausnitzer 1992, Johnston 1987, Komarkova 1982, Komarkova et al. 1988, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Terwilliger et al. 1979a, Wasser and Hess 1982, Youngblood and Mauk	3
Y	CEGL000317	Abies lasiocarpa / Luzula glabrata var. hitchcockii Forest	G5	WY, ID, WA, MT			ABIES LASIOCARPA FOREST ALLIANCE	Cooper et al. 1987, Pfister et al. 1977, Steele et al. 1983, Williams and Smith 1990	0
L	CEGL000318	Abies lasiocarpa / Mahonia repens Forest	G5	WY, ID, UT			ABIES LASIOCARPA FOREST ALLIANCE	Johnston 1987, Kerr and Henderson 1979, Mauk and Henderson 1984, Pfister 1972, Steele et al. 1983, Youngblood and Mauk 1985	0
Y	CEGL000319	Abies lasiocarpa / Menziesia ferruginea Forest	G5	OR, BC, ID, WY, MT, WA			ABIES LASIOCARPA FOREST ALLIANCE	Cooper et al. 1987, Daubenmire and Daubenmire 1968, Johnson and Simon 1987, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983	1
L	CEGL000323	Abies lasiocarpa / Osmorhiza berteroi Forest	G4	UT, ID, WY			ABIES LASIOCARPA FOREST ALLIANCE	Henderson et al. 1976, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983	2?

L	CEGL000331	Abies lasiocarpa / Ribes (montigenum, lacustre, inerme) Forest	G5	MT, UT, WY, CO, ID	YES		ABIES LASIOCARPA FOREST ALLIANCE	Henderson et al. 1977, Johnston 1987, Kettler and McMullen 1996, Kittel et al. 1994, Kittel et al. 1999, Langenheim 1962, Mauk and Henderson 1984, Peet 1975, Pfister 1972, Pfister et al. 1977, Shepherd 1975, Steele et al. 1981, Steele et al. 1983, Youngb	2?
L	CEGL000335	Abies lasiocarpa / Spiraea betulifolia Forest	G4	WY, ID			ABIES LASIOCARPA FOREST ALLIANCE	Steele et al. 1983	0
U	CEGL000337	Abies lasiocarpa / Symphoricarpos albus Forest	G3	ID, WY, MT	YES	YES	ABIES LASIOCARPA FOREST ALLIANCE	Cooper and Pfister 1981, Steele et al. 1983	1?
	CEGL000338	<i>Abies lasiocarpa / Thalictrum occidentale Forest</i>					ABIES LASIOCARPA FOREST ALLIANCE		3
L	CEGL000341	Abies lasiocarpa / Vaccinium membranaceum Rocky Mountain Forest	G5	WA, UT, MT, ID, WY			ABIES LASIOCARPA FOREST ALLIANCE	Cooper 1975, Johnston 1987, Kerr and Henderson 1979, Mauk and Henderson 1984, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Terwilliger et al. 1979a	7
L	CEGL000344	Abies lasiocarpa / Vaccinium scoparium Forest	G5	WY, CO, ID, UT, WA, AZ, NM, MT, OR			ABIES LASIOCARPA FOREST ALLIANCE	Alexander 1986, Amundsen 1967, Boyce 1977, Cole 1982, Cooper 1975, Daubenmire and Daubenmire 1968, DeVelice 1983, Dix and Richards 1976, Fritz 1981, Giese 1975, Hall 1973, Harrington 1978, Hess 1981, Hess and Alexander 1986, Hoffman and Alexander 1976, H	2
L	CEGL000346	Abies lasiocarpa / Xerophyllum tenax Forest	G5	ID, MT, WY, WA			ABIES LASIOCARPA FOREST ALLIANCE	Cooper 1975, Cooper et al. 1987, Daubenmire and Daubenmire 1968, Horton 1971, Pfister et al. 1977, Steele et al. 1983, Williams and Lillybridge 1985, Williams et al. 1990	0
		<i>Association Name Unknown</i>					ABIES LASIOCARPA FOREST ALLIANCE		5
L	CEGL000129	Pinus albicaulis / Carex rossii Forest	G3?	MT, ID, WY			PINUS ALBICAULIS FOREST ALLIANCE	Johnston 1987, Reed 1969, Steele et al. 1983	0
L	CEGL000131	Pinus albicaulis / Vaccinium scoparium Forest	G4	OR, MT, WY, ID, BC, AB			PINUS ALBICAULIS FOREST ALLIANCE	Cooper 1975, Johnston 1987, Reed 1969, Steele et al. 1983, Terwilliger et al. 1979a	5
L	CEGL000135	Pinus contorta / Arnica cordifolia Forest	G4?	WY, ID, MT			PINUS CONTORTA FOREST ALLIANCE	Johnston 1987, Steele et al. 1983	0
L	CEGL000139	Pinus contorta / Calamagrostis rubescens Forest	G5	MT, WA, ID, WY, OR			PINUS CONTORTA FOREST ALLIANCE	Horton 1971, Johnson and Clausnitzer 1992, Oswald 1966, Pfister et al. 1977, Steele et al. 1983, Tisdale and McLean 1957	4
	CEGL000141	<i>Pinus contorta / Carex geyeri Forest</i>					PINUS CONTORTA FOREST ALLIANCE		2
	CEGL000163	<i>Pinus contorta / Shepherdia canadensis Forest</i>					PINUS CONTORTA FOREST ALLIANCE		1

CEGL000164	Pinus contorta / Spiraea betulifolia Forest	G3G4	MT, WY, ID		PINUS CONTORTA FOREST ALLIANCE	Steele et al. 1983	3
CEGL000169	Pinus contorta / Vaccinium membranaceum Rocky Mountain Forest	G3G4	WY, ID, MT, OR		PINUS CONTORTA FOREST ALLIANCE	Steele et al. 1983	1
CEGL000172	Pinus contorta / Vaccinium scoparium Forest	G5	MT, OR, UT, ID, CO, WY, CA, WA		PINUS CONTORTA FOREST ALLIANCE	Alexander 1986, Cooper et al. 1987, Hall 1973, Harrington 1978, Hess 1981, Hess and Alexander 1986, Hoffman and Alexander 1976, Horton 1971, Johnson 1981a, Johnston 1987, Komarkova et al. 1988, Marr et al. 1973, Mauk and Henderson 1984, Oswald 1966, Pflis	4
	<i>Association Unknown</i>				<i>PINUS CONTORTA FOREST ALLIANCE</i>		2
CEGL000418	Pseudotsuga menziesii / Acer glabrum Forest	G4?	UT, OR, WY, ID		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Johnson and Simon 1987, Johnston 1987, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983	0
CEGL000429	Pseudotsuga menziesii / Calamagrostis rubescens Forest	G5	UT, WA, MT, OR, WY, ID, BC		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Clausnitzer and Zamora 1987, Cole 1982, Collins et al. 1984, Cooper et al. 1987, Daubenmire 1952, Daubenmire and Daubenmire 1968, Hall 1973, Horton 1971, Johnson and Clausnitzer 1992, Johnson and Simon 1987, Johnston 1987, Mauk and Henderson 1984, McLean	2
CEGL000447	Pseudotsuga menziesii / Physocarpus malvaceus Forest	G5	ID, UT, WY, WA, BC, MT, OR		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Clausnitzer and Zamora 1987, Cooper 1975, Cooper et al. 1987, Daubenmire 1952, Daubenmire and Daubenmire 1968, Hall 1973, Johnson and Simon 1987, Johnston 1987, Mauk and Henderson 1984, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, William	0
CEGL000457	Pseudotsuga menziesii / Spiraea betulifolia Forest	G5	WY, ID, MT, OR		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Cooper et al. 1987, Horton 1971, Johnson and Simon 1987, Johnston 1987, Oswald 1966, Pfister et al. 1977, Steele et al. 1983, Youngblood and Mueggler 1981	1?
CEGL000459	Pseudotsuga menziesii / Symphoricarpos albus Forest	G5	OR, BC, ID, WY, MT, WA		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Cooper 1975, Cooper et al. 1987, Daubenmire and Daubenmire 1968, Johnson and Clausnitzer 1992, Johnson and Simon 1987, Johnston 1987, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Topik et al. 1988, Williams and Lillybridge 1983, Williams	0
CEGL000462	Pseudotsuga menziesii / Symphoricarpos oreophilus Forest	G5	WA, NM, UT, MT, AZ, OR, ID, WY, TX, CO	YES	PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Diamond 1993, Hess and Wasser 1982, Johnson and Simon 1987, Johnston 1987, Kittel et al. 1994, Kittel et al. 1999, Komarkova et al. 1988, Mauk and Henderson 1984, Muldavin 1994c, Pfister et al. 1977, Reed 1976, Steele et al. 1981, Steele et al. 1983, Wil	0

U	CEGL000466	<i>Pseudotsuga menziesii</i> / <i>Vaccinium membranaceum</i> Forest	G5?	WY, ID, WA, MT		PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Cooper 1975, Cooper et al. 1987, Galatowitch and Bourgeron 1985, Johnston 1987, Pfister et al. 1977, Steele et al. 1983	2
<b>DECIDUOUS UPLAND FORESTS</b>								
U	CEGL000570	<i>Populus tremuloides</i> / <i>Amelanchier alnifolia</i> / Tall Forbs Forest	G3G5	UT, ID, NV		POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986	1
L	CEGL000575	<i>Populus tremuloides</i> / <i>Calamagrostis rubescens</i> Forest	G5?	WA, OR, MT, UT, WY, ID, NV		POPULUS TREMULOIDES FOREST ALLIANCE	Alexander 1986, Bader 1932, Cooper and Pfister 1981, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Williams and Lillybridge 1983, Youngblood and Mueggler 1981	1?
L	CEGL000591	<i>Populus tremuloides</i> / <i>Ligusticum filicinum</i> Forest (now part of 618?)	G4Q	WY		POPULUS TREMULOIDES FOREST ALLIANCE	Youngblood and Mueggler 1981	0
L	CEGL000603	<i>Populus tremuloides</i> / <i>Rudbeckia occidentalis</i> Forest (now part of 618?)	G?Q	WY		POPULUS TREMULOIDES FOREST ALLIANCE	Youngblood and Mueggler 1981	0
L	CEGL000606	<i>Populus tremuloides</i> / <i>Shepherdia canadensis</i> Forest	G3G4	ID, WY, CO		POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Powell 1988a, Youngblood and Mueggler 1981	0
L	CEGL000612	<i>Populus tremuloides</i> / <i>Symphoricarpos oreophilus</i> / <i>Calamagrostis rubescens</i> Forest	G3G5	UT, WY, ID		POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
U	CEGL000616	<i>Populus tremuloides</i> / <i>Symphoricarpos oreophilus</i> / <i>Thalictrum fendleri</i> Forest	G5	CO, WY, ID, NV, UT		POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986, Youngblood and Mueggler 1981	2
U	CEGL000610	<i>Populus tremuloides</i> / <i>Symphoricarpos oreophilus</i> Forest	G5	OR, MT, ID, AZ, NM, WY, TX, CO, UT, NV, WA		POPULUS TREMULOIDES FOREST ALLIANCE	Baker 1982, Boyce 1977, Dorn 1969, Ferchau 1973, Hess and Wasser 1982, Hoffman and Alexander 1980, Hoffman and Alexander 1983, Johnston 1987, Johnston and Hendzel 1985, Keammerer and Peterson 1981, Keammerer and Stoecker 1975, Keammerer and Stoecker 1980	1
L	CEGL000618	<i>Populus tremuloides</i> / Tall Forbs Forest	G5	MT, WY, ID, CO, NV, UT	YES	POPULUS TREMULOIDES FOREST ALLIANCE	Boyce 1977, Bunin 1975, Bunin 1975c, Hess and Wasser 1982, Hoffman and Alexander 1980, Hoffman and Alexander 1983, Johnston and Hendzel 1985, Keammerer and Stoecker 1980, Kittel et al. 1994, Kittel et al. 1999, Lewis 1975, Marr et al. 1973a, Montana Natu	2

L	CEGL000619	Populus tremuloides / Thalictrum fendleri Forest	G5	UT, ID, CO, WY, CA			POPULUS TREMULOIDES FOREST ALLIANCE	Boyce 1977, Bunin 1975, Bunin 1975c, Crouch 1983, Hess 1981, Hess and Alexander 1986, Hoffman and Alexander 1980, Hoffman and Alexander 1983, Johnston 1987, Johnston and Hendzel 1985, Keammerer and Stoecker 1980, Komarkova et al. 1988a, Langenheim 1962,	2
L	CEGL000622	Populus tremuloides / Wyethia amplexicaulis Forest	G3	UT, NV, ID, CO, WY	YES	YES	POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1982, Youngblood and Mueggler 1981	0
<b>MIXED EVERGREEN - DECIDUOUS FORESTS</b>									
L	CEGL000529	Populus tremuloides - Abies lasiocarpa / Shepherdia canadensis Forest	G3?	ID, WY, UT			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Youngblood and Mueggler 1981	0
L	CEGL000531	Populus tremuloides - Abies lasiocarpa / Symphoricarpos oreophilus / Tall Forbs Forest	G4G5	WY, ID, UT			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
L	CEGL000533	Populus tremuloides - Abies lasiocarpa / Tall Forbs Forest	G5	UT, WY, ID			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
	CEGL000535	<i>Populus tremuloides - Picea pungens Forest</i>					<i>PICEA PUNGENS - POPULUS TREMULOIDES FOREST ALLIANCE</i>		1
UL	CEGL000538	Populus tremuloides - Pinus contorta / Symphoricarpos oreophilus Forest	G3G4	ID, UT			PINUS CONTORTA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1982	1?
U	CEGL000543	Populus tremuloides - Pseudotsuga menziesii / Amelanchier alnifolia Forest	G3?	UT, ID, WY			POPULUS TREMULOIDES - PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	1
L	CEGL000544	Populus tremuloides - Pseudotsuga menziesii / Calamagrostis rubescens Forest	G3?	ID, WY			POPULUS TREMULOIDES - PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Mueggler 1988, Youngblood and Mueggler 1981	0

<b>EVERGREEN (CONIFEROUS) WOODLANDS</b>									
L	CEGL002677	<i>Picea engelmannii</i> / <i>Cornus sericea</i> Woodland	G3	ID, MT, UT, WA, WY, OR, BC	YES	YES	PICEA ENGELMANNII TEMPORARILY FLOODED WOODLAND ALLIANCE	Crowe and Clausnitzer 1997, Hall and Hansen 1997, Hansen et al. 1995, Kovalchik 1993, Padgett et al. 1989, Youngblood et al. 1985b	0
U	CEGL000389	<i>Picea pungens</i> / <i>Equisetum arvense</i> Woodland	G3?	UT, CO, WY	YES	YES	PICEA PUNGENS TEMPORARILY FLOODED WOODLAND ALLIANCE	Hansen et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Padgett et al. 1988, Padgett et al. 1989, Youngblood and Mauk 1985, Youngblood et al. 1985	2
	CEGL000754	<i>Pinus albicaulis</i> / <i>Carex geyeri</i> Woodland					PINUS ALBICAULIS WOODLAND ALLIANCE		1
	CEGL000758	<i>Pinus albicaulis</i> / <i>Luzula glabrata</i> var. <i>hichcockii</i> Woodland					PINUS ALBICAULIS WOODLAND ALLIANCE		1
L	CEGL000804	<i>Pinus flexilis</i> / <i>Cercocarpus ledifolius</i> Woodland	G4	MT, UT, WY, ID, CA, NV, BC, AB			PINUS FLEXILIS WOODLAND ALLIANCE	DeVelice 1992, Eddleman and Jaindl 1994, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983	0
<b>CONIFEROUS RIPARIAN / WETLAND FORESTS AND WOODLANDS</b>									
Y	CEGL000300	<i>Abies lasiocarpa</i> / <i>Calamagrostis canadensis</i> Forest	G5	ID, CO, WA, WY, MT, UT	YES		ABIES LASIOCARPA SEASONALLY FLOODED FOREST ALLIANCE	Cooper and Cottrell 1990, Cooper et al. 1987, Hess and Alexander 1986, Johnston 1987, Kettler and McMullen 1996, Kittel et al. 1999, Komarkova et al. 1988, Mauk and Henderson 1984, Pfister et al. 1977, Richard et al. 1996, Steele et al. 1981, Steele et a	0
L	CEGL000408	<i>Picea</i> ( <i>engelmannii</i> X <i>glauca</i> , <i>engelmannii</i> ) / <i>Equisetum arvense</i> Forest	G4	MT, WY, ID			PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Jensen 1990, Moseley et al. 1991, Pfister et al. 1977	0
L	CEGL002678	<i>Picea engelmannii</i> / <i>Calamagrostis canadensis</i> Forest	G4	ID, MT, WY	YES	YES	PICEA ENGELMANNII SATURATED FOREST ALLIANCE	Boggs et al. 1990, Hansen et al. 1995, Jankovsky-Jones 1997, Padgett et al. 1989, Youngblood et al. 1985, Zuck 1974	0
L	CEGL000363	<i>Picea engelmannii</i> / <i>Equisetum arvense</i> Forest	G4	ID, OR, CO, WY, UT, MT, WA, BC	YES		PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Cooper 1975, Cooper 1986a, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Johnston 1987, Kettler and McMullen 1996, Kittel et al. 1999, Kovalchik 1987, Kovalchik 1993, Mauk and Henderson 1984, Padgett et al. 1989, Peet 1975, Pfister et al. 1977, S	0

L	CEGL000365	<i>Picea engelmannii</i> / <i>Galium triflorum</i> Forest	G4	WY, ID		PICEA ENGELMANNII TEMPORARILY FLOODED FOREST ALLIANCE	Cooper 1975, Steele et al. 1981, Steele et al. 1983, Youngblood et al. 1985	1?
<b>DECIDUOUS RIPARIAN FORESTS AND WOODLANDS</b>								
	CEGL000653	<i>Populus angustifolia</i> / <i>Rosa woodsii</i> Forest				POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED FOREST ALLIANCE		2?
	CEGL000934	<i>Populus angustifolia</i> - <i>Picea pungens</i> / <i>Alnus incana</i> Woodland				POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE		2?
	CEGL000651	<i>Populus angustifolia</i> / <i>Prunus virginiana</i> Woodland				POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE		1?
		Association Unknown				POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE		3
		Association Unknown				POPULUS BALSAMIFERA SSP. TRICHOCARPA TEMPORARILY FLOODED FOREST ALLIANCE		2
L	CEGL000584	<i>Populus tremuloides</i> / <i>Equisetum arvense</i> Forest	G4	ID, WY		POPULUS TREMULOIDES SEASONALLY FLOODED FOREST ALLIANCE	Youngblood and Mueggler 1981	0

	CEGL000597	<i>Populus tremuloides</i> / <i>Pteridium aquilinum</i> Forest					POPULUS TREMULOIDES FOREST ALLIANCE		1?
	CEGL000604	<i>Populus tremuloides</i> / <i>Salix scouleriana</i> Forest					POPULUS TREMULOIDES FOREST ALLIANCE		1?
<b>EVERGREEN SHRUBLANDS &amp; SHRUB-STEPPE</b>									
	CEGL000985	<i>Abies lasiocarpa</i> Krummholtz Shrubland					ABIES LASIOCARPA KRUMMHOLTZ SHRUBLAND ALLIANCE		1
U	CEGL001409	<i>Artemisia arbuscula</i> / <i>Festuca idahoensis</i> Dwarf-shrub Herbaceous Vegetation	G5	MT, OR, ID, WY, CA, CO, WA, NV, UT			ARTEMISIA ARBUSCULA DWARF- SHRUB HERBACEOUS ALLIANCE	Blackburn et al. 1968b, Blackburn et al. 1969c, Blackburn et al. 1969d, Hall 1973, Hess and Wasser 1982, Lewis 1975, Mueggler and Stewart 1980, Tweit and Houston 1980, Zamora and Tueller 1973	4
Y	CEGL001075	<i>Artemisia cana</i> ssp. <i>viscidula</i> / <i>Festuca idahoensis</i> Shrubland	G3	ID, WY, MT	YES	YES	ARTEMISIA CANA SHRUBLAND ALLIANCE	Bramble-Brodahl 1978, Hansen et al. 1995, Mueggler and Stewart 1980, Mutz and Graham 1982, Schlatterer 1972, Youngblood et al. 1985	2?
Y	CEGL001021	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> / <i>Bromus carinatus</i> Shrubland	G4?	ID, NV, CA, UT			ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE	Hironaka et al. 1983, Lewis 1971	0
Y	CEGL001533	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> / <i>Festuca idahoensis</i> Shrub Herbaceous Vegetation	G5	WA, OR, MT, UT, CA, WY, CO, ID, NV, BC, AB			ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUB HERBACEOUS ALLIANCE	Bramble-Brodahl 1978, Despain 1973a, Francis 1983, Hess 1981, Hess and Wasser 1982, Hironaka et al. 1983, Hurd 1961, Jensen et al. 1988, Johnston 1987, Komarkova 1986, Lewis 1971, Lewis 1975, Mooney 1985, Mueggler and Stewart 1980, Sabinske 1978, Smith 1	3?
Y	CEGL001030	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> / <i>Pseudoroegneria spicata</i> Shrubland	G5	WY, ID, CO, NV, OR, UT			ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE	Baker 1983c, Baker and Kennedy 1985, Bramble-Brodahl 1978, Current 1984, Hironaka et al. 1983, Jensen et al. 1988, Lewis 1975, Mooney 1985, Smith 1966, Terwilliger and Smith 1978	8?
	CEGL001032	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> - <i>Purshia tridentata</i> / <i>Pseudoroegneria spicata</i> Shrubland					ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE		1?

		<i>Association Unknown</i>						ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE		5
Y	CEGL001536	Artemisia tripartita / Festuca idahoensis Shrub Herbaceous Vegetation	G3	WA, WY, OR, MT, ID				ARTEMISIA TRIPARTITA SHRUB HERBACEOUS ALLIANCE	Caicco and Wellner 1983h, Daubenmire 1970, Hess 1981, Hironaka et al. 1983, Johnston 1987, Mueggler and Stewart 1980	0
L	CEGL000967	Cercocarpus ledifolius / Pseudoroegneria spicata Shrubland	G4Q	MT, ID, OR, WY, CO, CA, UT, NV				CERCOCARPUS LEDIFOLIUS SHRUBLAND ALLIANCE	Baker 1983c, Baker and Kennedy 1985, Knight et al. 1987, Lewis 1975, Miller 1964, Mueggler and Stewart 1980, Tisdale 1986	0
<b>DECIDUOUS (RIPARIAN) SHRUBLANDS</b>										
U	CEGL001148	Alnus incana / Mesic Graminoids Shrubland	G3	NV, UT, ID, WY, CO	YES	YES		ALNUS INCANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Jones 1992, Kettler and McMullen 1996, Kittel et al. 1996, Kittel et al. 1999, Manning and Padgett 1995, Padgett et al. 1989, Richard et al. 1996	1
Y	CEGL001151	Alnus incana / Ribes (inermis, hudsonianum, lacustre) Shrubland	G3	WY, ID, WA, OR, BC	YES	YES		ALNUS INCANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Crowe and Clausnitzer 1997, Youngblood et al. 1985	0
Y	CEGL001141	Alnus incana Shrubland	G?Q	WA, MT, UT, WY, CA, ID				ALNUS INCANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Evans 1989a, Hansen et al. 1990, Hansen et al. 1991, Hansen et al. 1995	0
		<i>Association Unknown</i>						ALNUS INCANA SEASONALLY FLOODED SHRUBLAND ALLIANCE		1

L	CEGL001166	Cornus sericea / Galium triflorum Shrubland	G3?	WY, ID, OR, MT, UT	YES	YES	CORNUS SERICEA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Mutz and Graham 1982, Norton et al. 1981, Youngblood et al. 1985	0
L	CEGL001167	Cornus sericea / Heracleum maximum Shrubland	G3	UT, ID, WY			CORNUS SERICEA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Padgett et al. 1988, Padgett et al. 1989, Tuhy and Jensen 1982, Youngblood et al. 1985	0
L	CEGL001107	Dasiphora fruticosa ssp. floribunda / Deschampsia caespitosa Shrubland	G4	UT, MT, CO, ID, WY, OR	YES		DASIPHORA FRUTICOSA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Crowe and Clausnitzer 1997, Hansen et al. 1991, Hansen et al. 1995, Kettler and McMullen 1996, Mutz and Graham 1982, Padgett et al. 1988, Padgett et al. 1989, Sanderson and March 1996, Youngblood et al. 1985, Youngblood et al. 1985b	0
L	CEGL001132	Rhamnus alnifolia Shrubland	G3	ID, WY, OR, WA			RHAMNUS ALNIFOLIA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Bursik and Moseley 1995, Crowe and Clausnitzer 1997, Youngblood et al. 1985	1
L	CEGL001175	Salix boothii / Calamagrostis canadensis Shrubland	G3G4Q	NV, UT, MT, ID, WY, CO			SALIX BOOTHII SEASONALLY FLOODED SHRUBLAND ALLIANCE	Mutz and Graham 1982, Mutz and Queiroz 1983, Norton et al. 1981, Padgett et al. 1988, Tuhy and Jensen 1982, Youngblood et al. 1985	0
L	CEGL001178	Salix boothii / Carex utriculata Shrubland	G4	WY, CA, ID, UT, OR, CO	YES		SALIX BOOTHII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1999, Kovalchik 1987, Mutz and Graham 1982, Mutz and Queiroz 1983, Norton et al. 1981, Padgett et al. 1988, Padgett et al. 1989, Tuhy and Jensen 1982, Youngblood et al.	1
L	CEGL002671	Salix boothii / Equisetum arvense Shrubland	G3	ID, UT, WY	YES		SALIX BOOTHII SEASONALLY FLOODED SHRUBLAND ALLIANCE	Mutz and Graham 1982, Norton et al. 1981, Padgett et al. 1988, Youngblood et al. 1985	0

L	CEGL001187	Salix boothii / Maianthemum stellatum Shrubland (same as 1180)	G3Q	WY, ID, UT			SALIX BOOTHII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Youngblood et al. 1985	0
L	CEGL001180	Salix boothii / Mesic Forbs Shrubland	G3	CA, ID, UT, CO, WY, NV	YES	YES	SALIX BOOTHII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1999, Norton et al. 1981, Padgett et al. 1988, Padgett et al. 1989, Weixelman et al. 1996, Youngblood et al. 1985, Youngblood et al. 1985b	0
L	CEGL001181	Salix boothii / Mesic Graminoids Shrubland	G3?	ID, UT, CO, WY, MT	YES	YES	SALIX BOOTHII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Hansen et al. 1995, Padgett et al. 1988, Padgett et al. 1989, Reid 1990	3
	CEGL002631	Salix drummondiana / Carex utriculata Shrubland					SALIX DRUMMONDIANA SEASONALLY FLOODED SHRUBLAND ALLIANCE		1
L	CEGL001194	Salix eastwoodiae Shrubland [Placeholder]	G2Q	WY	YES	YES	SALIX EASTWOODIAE SEASONALLY FLOODED SHRUBLAND ALLIANCE	Youngblood et al. 1985	1
L	CEGL001207	Salix geeyeriana / Carex utriculata Shrubland	G5	OR, CO, ID, WY, NV, UT, MT	YES		SALIX GEYERIANA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Hansen et al. 1991, Hansen et al. 1995, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1999, Mutz and Queiroz 1983, Padgett et al. 1989, Tuhy and Jensen 1982, Youngblood et al. 1985	0
U	CEGL001210	Salix geeyeriana / Mesic Graminoids Shrubland	G2G3	UT, ID, NV			SALIX GEYERIANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1999, Norton et al. 1981, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985	2

		<i>Association Unknown</i>						<i>SALIX LEMMONII TEMPORARILY FLOODED SHRUBLAND ALLIANCE</i>		3
L	CEGL001224	Salix planifolia Shrubland	G4	WY, ID				SALIX PLANIFOLIA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Youngblood et al. 1985	0
L	CEGL001234	Salix wolfii / Carex aquatilis Shrubland	G4	MT, ID, WY, CO, UT				SALIX WOLFII SEASONALLY FLOODED SHRUBLAND ALLIANCE	Baker 1986, Baker 1989, Hansen et al. 1991, Hansen et al. 1995, Johnston 1987, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Mattson 1984, Norton et al. 1981, Padgett e	1?
L	CEGL001237	Salix wolfii / Carex utriculata Shrubland	G4	UT, ID, WY, CO	YES			SALIX WOLFII SEASONALLY FLOODED SHRUBLAND ALLIANCE	Jensen and Tuhy 1981, Kittel et al. 1994, Kittel et al. 1999, Mutz and Graham 1982, Norton et al. 1981, Padgett et al. 1988, Padgett et al. 1989, Tuhy and Jensen 1982, Youngblood et al. 1985	0
L	CEGL001238	Salix wolfii / Deschampsia caespitosa Shrubland	G3	UT, WY, MT, ID	YES	YES		SALIX WOLFII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Hansen et al. 1991, Hansen et al. 1995, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985, Youngblood et al. 1985b	0
L	CEGL001240	Salix wolfii / Mesic Forbs Shrubland	G3	ID, WY, UT, CO	YES	YES		SALIX WOLFII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Jensen and Tuhy 1981, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1999, Mutz and Queiroz 1983, Padgett et al. 1988, Padgett et al. 1989, Sanderson and Kettler 1996	0
<b>DECIDUOUS DWARF-SHRUBLANDS</b>										
		<i>Association Unknown</i>						<i>SALIX ARCTICA DWARF- SHRUB ALLIANCE</i>		3

GRAMINOID-DOMINATED GRASSLANDS, MEADOWS & WETLANDS									
L	CEGL001561	Calamagrostis canadensis - Senecio triangularis Herbaceous Vegetation	G2Q	WY	YES	YES	CALAMAGROSTIS CANADENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Mattson n.d.	0
L	CEGL001559	Calamagrostis canadensis Western Herbaceous Vegetation	G4	WA, MT, UT, OR, WY, ID, CO, CA, BC, ND, SD	YES		CALAMAGROSTIS CANADENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Cooper 1986a, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Gysel 1960, Hansen et al. 1988, Hansen et al. 1991, Komarkova 1976, Kovalchik 1993, Mattson 1984, Mattson n.d., Mutel 1976, Mutel and Marr 1973, Mutz and Queiroz 1983, Padgett et al. 198	0
L	CEGL001802	Carex aquatilis Herbaceous Vegetation	G5	WY, CA, CO, ID, WA, NV, MT, OR, AZ, UT, NM	YES		CAREX AQUATILIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Baker 1983c, Baker 1984a, Baker and Kennedy 1985, Bierly 1972, Briggs and MacMahon 1983, Bunin 1975c, Cox 1933, Giese 1975, Hall 1971, Hansen et al. 1987a, Hansen et al. 1991, Hansen et al. 1995, Hess and Wasser 1982, Johnson 1932, Johnson 1936, Johnson	0
		<i>Association Unknown</i>					<i>CAREX HOODII HERBACEOUS ALLIANCE?</i>		1?
U	CEGL001792	Carex microptera Herbaceous Vegetation	G4	WY, CO, ID, OR, UT	YES		CAREX MICROPTERA SEASONALLY FLOODED HERBACEOUS ALLIANCE	Hansen et al. 1987a, Kittel 1994, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985, Youngblood et al. 1985b	2
Y	CEGL001813	Carex nebrascensis Herbaceous Vegetation	G4	NM, AZ, MT, UT, OR, CO, WY, CA, ID, NE, SD, WA, NV	YES	YES	CAREX NEBRASCENSIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Baker 1982, Cooper and Cottrell 1990, Hall 1973, Hansen et al. 1987a, Hansen et al. 1991, Kittel et al. 1994, Kittel et al. 1996, Kovalchik 1987, Mutz and Queiroz 1983, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985, Youngblood et al. 1	0

L	CEGL001825	Carex simulata Herbaceous Vegetation	G4	UT, NV, WY, CA, MT, OR, ID, CO, WA		CAREX SIMULATA SATURATED HERBACEOUS ALLIANCE	Hansen et al. 1987a, Hansen et al. 1991, Hansen et al. 1995, Kovalchik 1987, Nachlinger 1985, Padgett et al. 1988, Padgett et al. 1989, Sanderson and Kettler 1996, Tuhy and Jensen 1982, Youngblood et al. 1985	0
L	CEGL001562	Carex utriculata Herbaceous Vegetation	G5	UT, WA, CA, CO, NV, OR, AZ, NM, MT, WY, ID	YES	CAREX (ROSTRATA, UTRICULATA) SEASONALLY FLOODED HERBACEOUS ALLIANCE	Andrews 1983, Baker 1983a, Benedict 1983, Franklin and Dyrness 1973, Hansen et al. 1987a, Hansen et al. 1991, Hansen et al. 1995, Hess and Wasser 1982, Kerr and Henderson 1979, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kitte	2
Y	CEGL001599	Deschampsia caespitosa Herbaceous Vegetation	G4	CA, ID, NV, WA, MT, AZ, OR, UT, CO		DESCHAMPSIA CAESPITOSA SEASONALLY FLOODED HERBACEOUS ALLIANCE	Bonham and Ward 1970, Briggs and MacMahon 1983, Crowe and Clausnitzer 1997, Daubenmire and Daubenmire 1968, Franklin and Dyrness 1973, Hall 1971, Hall 1973, Hamann 1972, Hansen et al. 1987a, Hansen et al. 1991, Hansen et al. 1995, Hess and Wasser 1982, J	0
U	CEGL001833	Eleocharis palustris Herbaceous Vegetation	G5	MT, UT, CA, NV, WA, OR, SK, ID, CO, WY, NE, SD	YES	ELEOCHARIS PALUSTRIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Baker 1983c, Baker and Kennedy 1985, Brotherson and Barnes 1984, Bunin 1985, Ellis et al. 1979, Flowers 1962, Hansen et al. 1987a, Hansen et al. 1991, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kovalchik 1987, Kovalchik 1993,	2
L	CEGL001838	Juncus balticus Herbaceous Vegetation	G5	MT, NM, OR, CO, CA, SD, WY, ID, UT, NV, WA	YES	JUNCUS BALTICUS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Brotherson and Barnes 1984, Bunin 1985, Flowers 1962, Hansen et al. 1988, Hansen et al. 1991, Hess 1981, Kittel and Lederer 1993, Kittel et al. 1994, Komarkova 1986, Manning 1988, Mutel 1973, Mutz and Graham 1982, Olson and Gerhart 1982, Padgett 1982, Pa	0
	CEGL001905	<i>Juncus drummondii</i> - <i>Carex</i> sp. Herbaceous Vegetation				<i>JUNCUS DRUMMONDII</i> <i>HERBACEOUS ALLIANCE</i>		1?
		<i>Association Unknown</i>				<i>JUNCUS PARRYI</i> <i>HERBACEOUS ALLIANCE</i>		1

		<i>Association Unknown (Bromus inermis ssp. inermis Meadow (not an NVCS type))</i>				MEDIUM-TALL SOD TEMPERATE PLANTED GRASSLAND (FORMATION)		1
		<i>Association Unknown (Calamagrostis rubescens Herbaceous Vegetation (not an NVCS type))</i>						1
		<i>Association Unknown (Carex geyeri Herbaceous Vegetation (not an NVCS type))</i>						2
		<i>Association Unknown (Carex rossii Herbaceous Vegetation (not an NVCS type))</i>						1
		<i>Association Unknown (Poa compressa Herbaceous Vegetation (not an NVCS type))</i>						1
<b>FORB-DOMINATED MEADOWS &amp; RIPARIAN</b>								
U	CEGL001955	<i>Caltha leptosepala - Deschampsia caespitosa</i> Herbaceous Vegetation	G3	WY		CALTHA LEPTOSEPALA SATURATED HERBACEOUS ALLIANCE	Gregory 1983, Potkin and Munn 1989, Starr 1974	2
L	CEGL001940	<i>Heracleum maximum - Rudbeckia occidentalis</i> Herbaceous Vegetation	G4	WY, MT		HERACLEUM MAXIMUM TEMPORARILY FLOODED HERBACEOUS ALLIANCE	Gregory 1983	1

L	CEGL001941	Ligusticum filicinum - Delphinium X occidentale Herbaceous Vegetation	G3	WY		LIGUSTICUM FILICINUM HERBACEOUS ALLIANCE	Gregory 1983, Horton 1971	6
L	CEGL001944	Mertensia ciliata Herbaceous Vegetation	G3	UT, ID, CO, WY		MERTENSIA CILIATA HERBACEOUS ALLIANCE	Komarkova 1976, Padgett et al. 1989	0
	CEGL001980	<i>Phlox pulvinata</i> - <i>Trifolium dasyphyllum</i> Herbaceous Vegetation				PHLOX PULVINATA HERBACEOUS ALLIANCE		2?
L	CEGL001988	Senecio triangularis - Mimulus guttatus Herbaceous Vegetation	G3?	WY		SENECIO TRIANGULARIS SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE	Mattson n.d., Norton et al. 1981	0
	CEGL001933	<i>Sibbaldia procumbens</i> - <i>Polygonum bistortoides</i> Herbaceous Vegetation				SIBBALDIA PROCUMBENS HERBACEOUS ALLIANCE		2?
L	CEGL001947	Wyethia amplexicaulis Herbaceous Vegetation	G3?	WY		WYETHIA AMPLEXICAULIS HERBACEOUS ALLIANCE	Bissell 1973, Gregory 1983	0
		<i>Balsamorhiza sagittata</i> - <i>Helanthea uniflora</i> Herbaceous Vegetation (not an NVCS type)				ALLIANCE UNKNOWN		1
		Association Unknown				ALLIANCE UNKNOWN		5
<b>FORB-DOMINATED AQUATIC</b>								
L	CEGL002001	Nuphar lutea ssp. polysepala Herbaceous Vegetation	G5	OR, CO, ID, WY, WA, CA		NYMPHAEA ODORATA - NUPHAR SPP. PERMANENTLY FLOODED TEMPERATE HERBACEOUS ALLIANCE	Kovalchik 1993, Kunze 1994, Marr et al. 1980, Ramaley and Robbins 1909, Sawyer and Keeler-Wolf 1995	0

		<i>Association Unknown</i>				<i>NUPHAR LUTEA PERMANENTLY FLOODED HERBACEOUS ALLIANCE</i>		1
		<i>Association Unknown</i>				<i>PERMANENTLY FLOODED TEMPERATE OR SUBPOLAR HYDROMORPHIC ROOTED VEGETATION (FORMATION)</i>		1
<b>ALPINE (UNCLASSIFIED) COMMUNITIES</b>								
Y		Substantial part of GTNP is Alpine Rock & Soil or Alpine Tundra (Wyo GAP types), so we should add at least 10 alpine communities. Unfortunately, we don't know what they are.						
		<i>Association Unknown</i>				<i>SPARSELY VEGETATED HIGH MOUNTAIN TALUS - SCREE SLOPES (FORMATION)</i>		1
<b>PLANT ASSOCIATIONS NOT SAMPLED DURING THE 2002 FIELD SEASON AND UNLIKELY TO OCCUR IN GTNP</b>								
U	CEGL000305	<i>Abies lasiocarpa</i> / <i>Carex rossii</i> Forest	G4G5	UT, WY, ID, CO		ABIES LASIOCARPA FOREST ALLIANCE	Steele et al. 1983, Youngblood and Mauk 1985	0
U	CEGL000311	<i>Abies lasiocarpa</i> / <i>Galium triflorum</i> Forest	G4	MT		ABIES LASIOCARPA FOREST ALLIANCE	Pfister et al. 1977	0
U	CEGL000315	<i>Abies lasiocarpa</i> / <i>Linnaea borealis</i> Forest	G5	UT, OR, MT, WA, ID, WY, BC		ABIES LASIOCARPA FOREST ALLIANCE	Cooper 1975, Henderson et al. 1985, Johnson and Simon 1987, Johnston 1987, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Williams and Lillybridge 1983, Williams and Lillybridge 1985, Williams and Smith 1990, Williams et al. 1990	0
U	CEGL000325	<i>Abies lasiocarpa</i> / <i>Pedicularis racemosa</i> Forest	G5	ID, UT, WY, CO		ABIES LASIOCARPA FOREST ALLIANCE	Henderson et al. 1976, Mauk and Henderson 1984, Steele et al. 1983	0
U	CEGL000326	<i>Abies lasiocarpa</i> / <i>Physocarpus malvaceus</i> Forest	G3	WY, ID, UT		ABIES LASIOCARPA FOREST ALLIANCE	Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0

U	CEGL000355	<i>Picea engelmannii</i> / <i>Arnica cordifolia</i> Forest	G3G4	WY			PICEA ENGELMANNII FOREST ALLIANCE	Steele et al. 1983	0
U	CEGL000369	<i>Picea engelmannii</i> / <i>Juniperus communis</i> Forest	G3	WY, ID	YES	YES	PICEA ENGELMANNII FOREST ALLIANCE	Johnston 1987, Steele et al. 1983	0
U	CEGL002689	<i>Picea engelmannii</i> / <i>Linnaea borealis</i> Forest	G4	MT, WY	YES	YES	PICEA ENGELMANNII FOREST ALLIANCE	Cooper 1975, Pfister et al. 1977, Steele et al. 1983	0
U	CEGL000378	<i>Picea engelmannii</i> / <i>Vaccinium caespitosum</i> Forest	G4G5	UT			PICEA ENGELMANNII FOREST ALLIANCE	Mauk and Henderson 1984, Pfister et al. 1977	0
U	CEGL000379	<i>Picea engelmannii</i> / <i>Vaccinium myrtilus</i> Forest	G4Q	NM			PICEA ENGELMANNII FOREST ALLIANCE	Fitzhugh et al. 1987	0
U	CEGL000381	<i>Picea engelmannii</i> / <i>Vaccinium scoparium</i> Forest	G3G5	WY, CO, UT, MT			PICEA ENGELMANNII FOREST ALLIANCE	Hoffman and Alexander 1976, Johnston 1987, Mauk and Henderson 1984, Reed 1976, Steele et al. 1983, Terwilliger et al. 1979a	0
U	CEGL000166	<i>Pinus contorta</i> / <i>Symphoricarpos albus</i> Forest	G3Q	UT, WY			PINUS CONTORTA FOREST ALLIANCE	Steele et al. 1983	0
U	CEGL000427	<i>Pseudotsuga menziesii</i> / <i>Arnica cordifolia</i> Forest	G4	MT, WY, ID			PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Johnston 1987, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983	0
U	CEGL000439	<i>Pseudotsuga menziesii</i> / <i>Juniperus communis</i> Forest	G4	ID, WY, CO, MT			PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Giese 1975, Johnston 1987, Murphy 1982, Pfister et al. 1977, Steele et al. 1981, Steele et al. 1983, Vories 1974	0
U	CEGL000441	<i>Pseudotsuga menziesii</i> / <i>Linnaea borealis</i> Forest	G4	WY, ID, MT			PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Pfister et al. 1977, Steele et al. 1981	0
U	CEGL000442	<i>Pseudotsuga menziesii</i> / <i>Mahonia repens</i> Forest	G5	OR, CO, NM, ID, WY, MT, AZ, UT			PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Alexander et al. 1984, Alexander et al. 1984a, Atzet and Wheeler 1984, Hoffman and Alexander 1976, Johnston 1984, Johnston 1987, Larson and Moir 1987, Mauk and Henderson 1984, Roberts 1980, Roberts et al. 1992, Steele et al. 1981, Steele et al. 1983, You	0
U	CEGL000445	<i>Pseudotsuga menziesii</i> / <i>Osmorhiza berteroi</i> Forest	G4G5	UT, ID, WY			PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983	0
U	CEGL000446	<i>Pseudotsuga menziesii</i> / <i>Paxistima myrsinites</i> Forest	G2G3	CO, BC	YES	YES	PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Bunin 1975c, Daubenmire 1952, Hess and Wasser 1982, Hoffman and Alexander 1980, Komarkova et al. 1988a, Tisdale and McLean 1957	0

U	CEGL000558	Acer grandidentatum / Calamagrostis rubescens Forest	G2Q	ID, WY			ACER GRANDIDENTATUM MONTANE FOREST ALLIANCE	Caicco and Wellner 1983d	0
U	CEGL000566	Populus tremuloides / Amelanchier alnifolia - Symphoricarpos oreophilus / Bromus carinatus Forest	G3G5	UT, WY, ID			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988	0
U	CEGL000567	Populus tremuloides / Amelanchier alnifolia - Symphoricarpos oreophilus / Calamagrostis rubescens Forest	G4	UT, ID			POPULUS TREMULOIDES FOREST ALLIANCE	Hoffman and Alexander 1983, Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Youngblood and Mueggler 1981	0
UL	CEGL000568	Populus tremuloides / Amelanchier alnifolia - Symphoricarpos oreophilus / Tall Forbs Forest	G5	UT, NV, ID			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
U	CEGL000569	Populus tremuloides / Amelanchier alnifolia - Symphoricarpos oreophilus / Thalictrum fendleri Forest	G5	UT, ID, NV, WY, CO			POPULUS TREMULOIDES FOREST ALLIANCE	Baker and Kennedy 1985, Johnston and Hendzel 1985, Komarkova et al. 1988a, Mueggler 1988, Youngblood and Mueggler 1981	0
U	CEGL000571	Populus tremuloides / Amelanchier alnifolia / Thalictrum fendleri Forest	G3G4	NV, WY, CA, ID, UT			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1982, Mueggler and Campbell 1986, Youngblood and Mueggler 1981	0
U	CEGL000572	Populus tremuloides / Artemisia tridentata Forest	G3G4	WY, CA, ID, UT, NV			POPULUS TREMULOIDES FOREST ALLIANCE	Blackburn et al. 1969d, Johnston 1987, Mueggler 1988, Youngblood and Mueggler 1981	0
UL	CEGL000589	Populus tremuloides / Juniperus communis / Lupinus argenteus Forest	G3G4	WY, UT			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988	0
U	CEGL000602	Populus tremuloides / Rubus parviflorus Forest	G2	UT, WY, ID	YES	YES	POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988	0
UL	CEGL000613	Populus tremuloides / Symphoricarpos oreophilus / Carex rossii Forest	G3G4	UT, NV, ID, WY			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
U	CEGL000615	Populus tremuloides / Symphoricarpos oreophilus / Tall Forbs Forest	G3G5	WY, NV, ID, UT			POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
UL	CEGL000524	Populus tremuloides - Abies lasiocarpa / Amelanchier alnifolia Forest	G3?	UT, ID, WY			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0

UL	CEGL000525	Populus tremuloides - Abies lasiocarpa / Carex geyeri Forest	G3?	UT, ID, WY			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
UL	CEGL000526	Populus tremuloides - Abies lasiocarpa / Carex rossii Forest	G5	UT			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
UL	CEGL000528	Populus tremuloides - Abies lasiocarpa / Pedicularis racemosa Forest	G2	WY	YES	YES	ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Youngblood and Mueggler 1981	0
U	CEGL000532	Populus tremuloides - Abies lasiocarpa / Symphoricarpos oreophilus / Thalictrum fendleri Forest	G3?	UT, WY, ID			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
U	CEGL000534	Populus tremuloides - Abies lasiocarpa / Thalictrum fendleri Forest	G4G5	UT, WY			ABIES LASIOCARPA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988	0
UL	CEGL000537	Populus tremuloides - Pinus contorta / Juniperus communis Forest	G4G5	WY, UT			PINUS CONTORTA - POPULUS TREMULOIDES FOREST ALLIANCE	Mueggler 1988, Mueggler and Campbell 1986	0
U	CEGL000546	Populus tremuloides - Pseudotsuga menziesii / Symphoricarpos oreophilus Forest	G4	WY, ID, UT, NV			POPULUS TREMULOIDES - PSEUDOTSUGA MENZIESII FOREST ALLIANCE	Eddleman and Jaindl 1994, Mueggler 1988	0
UL	CEGL000919	Abies lasiocarpa / Juniperus communis Woodland	G4G5	MT, UT, NV, WA, NM, AZ, OR, WY, ID			ABIES LASIOCARPA WOODLAND ALLIANCE	Henderson et al. 1986, Henderson et al. 1989, Johnston 1984, Johnston 1987, Larson and Moir 1987, Mauk and Henderson 1984, Moir and Ludwig 1979, Pfister et al. 1977, Roberts 1980, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0
U	CEGL000755	Pinus albicaulis / Festuca idahoensis Woodland	G4	WY, ID, MT			PINUS ALBICAULIS WOODLAND ALLIANCE	Johnston 1987, Montana Natural Heritage Program (MTNHP) n.d., Steele et al. 1983	0
U	CEGL000756	Pinus albicaulis / Juniperus communis Woodland	G4?	ID, WY, MT			PINUS ALBICAULIS WOODLAND ALLIANCE	Johnston 1987, Reed 1969, Steele et al. 1983	0

U	CEGL000810	Pinus flexilis / Leucopoa kingii Woodland	G3	ID, WY, MT			PINUS FLEXILIS WOODLAND ALLIANCE	Alexander 1986, Cooper 1975, Johnston 1987, Jones 1989, Steele et al. 1981, Steele et al. 1983, Terwilliger et al. 1979a	0
U	CEGL000811	Pinus flexilis / Mahonia repens Woodland	G3?	UT			PINUS FLEXILIS WOODLAND ALLIANCE	Mauk and Henderson 1984	0
U	CEGL000897	Pseudotsuga menziesii / Cercocarpus ledifolius Woodland	G4?	OR, WY, ID, UT			PSEUDOTSUGA MENZIESII WOODLAND ALLIANCE	DeVelice 1992, Johnson and Clausnitzer 1992, Mauk and Henderson 1984, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0
U	CEGL000898	Pseudotsuga menziesii / Cercocarpus montanus Woodland	G4?	UT			PSEUDOTSUGA MENZIESII WOODLAND ALLIANCE	Youngblood and Mauk 1985	0
U	CEGL000904	Pseudotsuga menziesii / Leucopoa kingii Woodland	G3G4	ID, WY			PSEUDOTSUGA MENZIESII WOODLAND ALLIANCE	Steele et al. 1983	0
U	CEGL000314	Abies lasiocarpa / Ledum glandulosum Forest	G4	MT, ID, CO, WA			ABIES LASIOCARPA SEASONALLY FLOODED FOREST ALLIANCE	Cooper et al. 1987, Hansen et al. 1991, Hansen et al. 1995, Kovalchik 1993	0
U	CEGL000336	Abies lasiocarpa / Streptopus amplexifolius Forest	G4	WY, ID, WA, MT, OR, UT			ABIES LASIOCARPA TEMPORARILY FLOODED FOREST ALLIANCE	Cooper et al. 1987, Hansen et al. 1991, Hansen et al. 1995, Johnson and Simon 1987, Kovalchik 1993, Mauk and Henderson 1984, Padgett et al. 1988, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0
U	CEGL000405	Picea (engelmannii X glauca, engelmannii) / Carex disperma Forest	G2Q	ID, MT, WY	YES	YES	PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Steele et al. 1981, Steele et al. 1983	0
U	CEGL000357	Picea engelmannii / Caltha leptosepala Forest	G3?	MT, UT, ID, WY			PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Johnston 1987, Mauk and Henderson 1984, Steele et al. 1983	0

CEGL000336	<i>Abies lasiocarpa</i> / <i>Streptopus amplexifolius</i> Forest	G4	WY, ID, WA, MT, OR, UT			ABIES LASIOCARPA TEMPORARILY FLOODED FOREST ALLIANCE	Cooper et al. 1987, Hansen et al. 1991, Hansen et al. 1995, Johnson and Simon 1987, Kovalchik 1993, Mauk and Henderson 1984, Padgett et al. 1988, Steele et al. 1981, Steele et al. 1983, Youngblood and Mauk 1985	0
CEGL000405	<i>Picea (engelmannii X glauca, engelmannii)</i> / <i>Carex disperma</i> Forest	G2Q	ID, MT, WY	YES	YES	PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Steele et al. 1981, Steele et al. 1983	0
CEGL000357	<i>Picea engelmannii</i> / <i>Caltha leptosepala</i> Forest	G3?	MT, UT, ID, WY			PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Johnston 1987, Mauk and Henderson 1984, Steele et al. 1983	0
CEGL000358	<i>Picea engelmannii</i> / <i>Carex disperma</i> Forest	G2	MT, ID, WY, OR	YES	YES	PICEA ENGELMANNII SEASONALLY FLOODED FOREST ALLIANCE	Crowe and Clausnitzer 1997, Johnston 1987, Steele et al. 1981, Steele et al. 1983	0
CEGL000648	<i>Populus angustifolia</i> / <i>Betula occidentalis</i> Woodland	G3	UT, WY, CO, ID, NV	YES	YES	POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE	Cooper and Cottrell 1990, Kittel et al. 1994, Kittel et al. 1996, Kittel et al. 1997, Kittel et al. 1999, Komarkova 1986, Olson and Gerhart 1982, Padgett et al. 1988, Padgett et al. 1989, Smith 1994b, Walford 1996	0
CEGL002664	<i>Populus angustifolia</i> / <i>Cornus sericea</i> Woodland	G4	WY, NV, ID, CO, MT, UT, NM, OR, SD	YES		POPULUS ANGUSTIFOLIA TEMPORARILY FLOODED WOODLAND ALLIANCE	Cather & Company 1977, DeLeuw, Hansen et al. 1991, Hansen et al. 1995, Hess and Wasser 1982, Johnston 1987, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1999, Muldavin et al. 1993, Padgett et al. 1988, Padgett et al. 198	0
CEGL000672	<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Cornus sericea</i> Forest	G3?	WA, OR, MT, ID, CA	YES	YES	POPULUS BALSAMIFERA SSP. TRICHOCARPA TEMPORARILY FLOODED FOREST ALLIANCE	Evans 1989a, Hall and Hansen 1997, Hansen et al. 1991, Hansen et al. 1995, Kovalchik 1987, Kovalchik 1993	0

U	CEGL000599	<i>Populus tremuloides</i> / <i>Ranunculus alismifolius</i> Forest	G2?	WY	YES	YES	POPULUS TREMULOIDES SEASONALLY FLOODED FOREST ALLIANCE	Youngblood and Mueggler 1981	0
U	CEGL001412	<i>Artemisia arbuscula</i> / <i>Pseudoroegneria spicata</i> Dwarf-shrub Herbaceous Vegetation	G5	WA, NV, MT, OR, NM, ID			ARTEMISIA ARBUSCULA DWARF- SHRUB HERBACEOUS ALLIANCE	Blackburn et al. 1971, Hall 1973, Jensen et al. 1988, Lewis 1975, Mueggler and Stewart 1980, Schuller and Evans 1986, Tiedemann and Klock 1977, Zamora and Tueller 1973	0
U	CEGL001524	<i>Artemisia nova</i> / <i>Festuca idahoensis</i> Dwarf- shrub Herbaceous Vegetation	G2?	MT, ID, WY	YES	YES	ARTEMISIA NOVA DWARF-SHRUB HERBACEOUS ALLIANCE	Mueggler and Stewart 1980	0
U	CEGL001423	<i>Artemisia nova</i> / <i>Poa secunda</i> Dwarf- shrubland	G3	ID, CA, OR, NV, UT	YES	YES	ARTEMISIA NOVA DWARF-SHRUBLAND ALLIANCE	Caicco and Wellner 1983f, Oregon Natural Heritage Program (ORNHP) n.d., Rust 1999	0
U	CEGL001424	<i>Artemisia nova</i> / <i>Pseudoroegneria spicata</i> Dwarf-shrubland	G4G5	NV, WY, CO, ID, MT, OR			ARTEMISIA NOVA DWARF-SHRUBLAND ALLIANCE	Baker 1983c, Baker and Kennedy 1985, Blackburn et al. 1968c, Blackburn et al. 1971, Fisser 1962, Fisser 1970, Hughes 1977, Lucky McMine Application n.d., Soil Conservation Service 1978, Tweit and Houston 1980, Zamora and Tueller 1973	0
U	CEGL001036	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> - <i>Symphoricarpos oreophilus</i> / <i>Festuca</i> <i>idahoensis</i> Shrubland	G4	ID, WY			ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE	Caicco and Wellner 1983a, Hironaka et al. 1983	0
U	CEGL001038	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> - <i>Symphoricarpos oreophilus</i> / <i>Pseudoroegneria</i> <i>spicata</i> Shrubland	G5?	NV, ID, UT, WY			ARTEMISIA TRIDENTATA SSP. VASEYANA SHRUBLAND ALLIANCE	Hironaka et al. 1983, Jensen et al. 1988, Tueller and Eckert 1987	0
U	CEGL001051	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> / <i>Hesperostipa comata</i> Shrubland	G2	OR, ID, WA, UT	YES	YES	ARTEMISIA TRIDENTATA SSP. WYOMINGENSIS SHRUBLAND ALLIANCE	Caicco and Wellner 1983k, Hironaka et al. 1983, Winward 1970	0

U	CEGL001049	Artemisia tridentata ssp. wyomingensis / Poa secunda Shrubland	G4	OR, ID, WY, NV, CA, MT, WA			ARTEMISIA TRIDENTATA SSP. WYOMINGENSIS SHRUBLAND ALLIANCE	Caicco and Wellner 1983, Hironaka et al. 1983, Jensen et al. 1988	0
U	CEGL001535	Artemisia tridentata ssp. wyomingensis / Pseudoroegneria spicata Shrub Herbaceous Vegetation	G4	MT, UT, AZ, NV, WA, OR, NM, CA, ID, WY, CO, BC, ND, SD	YES		ARTEMISIA TRIDENTATA SSP. WYOMINGENSIS SHRUB HERBACEOUS ALLIANCE	Baker 1983c, Baker and Kennedy 1985, Brown 1971, Fisser 1964, Fisser 1970, Hansen and Hoffman 1988, Hess 1981, Knight et al. 1987, Lucky McMine Application n.d., Northwest Resources Co. 1981, Seminole I Mine Application n.d., Smith n.d., Strong 1980, Tied	0
U	CEGL001538	Artemisia tripartita / Pseudoroegneria spicata Shrub Herbaceous Vegetation	G2G3	BC, ID, WA, OR	YES	YES	ARTEMISIA TRIPARTITA SHRUB HERBACEOUS ALLIANCE	Caicco and Wellner 1983i, Caicco and Wellner 1983j, Daubenmire 1970, Hironaka et al. 1983, McLean 1970	0
U	CEGL001498	Purshia tridentata / Hesperostipa comata Shrub Herbaceous Vegetation	G2	WA, OR, ID	YES	YES	PURSHIA TRIDENTATA SHRUB HERBACEOUS ALLIANCE	Daubenmire 1970, Poulton 1955, Tisdale 1947	0
U	CEGL001495	Purshia tridentata / Pseudoroegneria spicata Shrub Herbaceous Vegetation	G3	OR, BC, ID, CA, MT, WA	YES	YES	PURSHIA TRIDENTATA SHRUB HERBACEOUS ALLIANCE	Daubenmire 1970, Hall 1973, Hironaka et al. 1983, Johnson and Simon 1987, Mueggler and Stewart 1980	0
U	CEGL001145	Alnus incana / Cornus sericea Shrubland	G3Q	CA, WA, WY, CO, ID, NV, OR, MT, UT	YES		ALNUS INCANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Crowe and Clausnitzer 1997, Johnston 1987, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Kovalchik 1993, Padgett et al. 1988, Padgett et al. 1989, Richard et al. 1996, Tuhy and Jensen 1982	0
U	CEGL001147	Alnus incana / Mesic Forbs Shrubland	G3	OR, MT, UT, CA, ID, WA, NV, CO, WY	YES	YES	ALNUS INCANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Cooper and Cottrell 1990, Kettler and McMullen 1996, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Kovalchik 1993, Padgett et al. 1988, Padgett et al. 1989	0

U	CEGL001161	Betula occidentalis / Cornus sericea Shrubland	G3?	ID, WY, CA, WA, UT, MT, OR	YES		BETULA OCCIDENTALIS TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Evans 1989a, Hansen et al. 1988, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985b	0
U	CEGL001162	Betula occidentalis / Mesic Forbs Shrubland	G2G3	CA, ID, UT, CO, OR, WA, NV	YES	YES	BETULA OCCIDENTALIS TEMPORARILY FLOODED SHRUBLAND ALLIANCE	, Cooper and Cottrell 1990, Crowe and Clausnitzer 1997, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Manning and Padgett 1995, Padgett et al. 1989	0
U	CEGL001080	Betula occidentalis Shrubland	G3Q	MT, NV, ID, CO, WY, WA			BETULA OCCIDENTALIS SEASONALLY FLOODED SHRUBLAND ALLIANCE	Evans 1989a, Hansen et al. 1991, Hansen et al. 1995, Kittel and Lederer 1993	0
U	CEGL001176	Salix (boothii, geyeriana) / Carex aquatilis Shrubland	G3	UT, CA, OR, ID, CO, WA, BC			SALIX BOOTHII SEASONALLY FLOODED SHRUBLAND ALLIANCE	Crowe and Clausnitzer 1997, Kovalchik 1987, Padgett et al. 1988, Youngblood et al. 1985, Youngblood et al. 1985b	0
U	CEGL001228	Salix (farriar, planifolia) / Carex utriculata Shrubland	G3	ID, WA, BC			SALIX PLANIFOLIA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Kovalchik 1993, Mutz and Queiroz 1983	0
UL	CEGL001174	Salix bebbiana / Mesic Graminoids Shrubland	G3?	UT, ID			SALIX BEBBIANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Boggs et al. 1990, Hansen et al. 1988, Padgett et al. 1988, Padgett et al. 1989	0

U	CEGL001183	Salix boothii / Poa palustris Shrubland	GW	UT, ID	YES	YES	SALIX BOOTHII TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Padgett et al. 1989, Youngblood et al. 1985	0
U	CEGL001200	Salix exigua / Barren Shrubland	G3?	ID, UT, CO, WA	YES		SALIX EXIGUA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	, Christy 1973, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Padgett et al. 1988, Padgett et al. 1989, Tuhy and Jensen 1982	0
U	CEGL001201	Salix exigua / Equisetum arvense Shrubland	G3	OR, ID, WY, WA			SALIX EXIGUA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Crowe and Clausnitzer 1997, Youngblood et al. 1985	0
U	CEGL001202	Salix exigua / Mesic Forbs Shrubland	G2?	UT, ID, WY			SALIX EXIGUA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Padgett et al. 1988, Padgett et al. 1989	0
U	CEGL001203	Salix exigua / Mesic Graminoids Shrubland	G5	KS, UT, OK, NE, ID, CO, WY	YES		SALIX EXIGUA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Christy 1973, Cooper and Cottrell 1990, Kittel 1994, Kittel and Lederer 1993, Kittel et al. 1996, Kittel et al. 1999, Padgett et al. 1988, Padgett et al. 1989	0
U	CEGL001197	Salix exigua Temporarily Flooded Shrubland	G5	MB, OR, AR, ID, ND, WY, SD, NE, IA, OK, WA, MT, IL	YES	YES	SALIX EXIGUA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Evenden 1990, Foti et al. 1994, Hansen et al. 1989, Hansen et al. 1991, Hansen et al. 1995, Hoagland 1997, Kittel and Lederer 1993, Kovalchik 1987, Phillips 1977, Steinauer and Rolfmeier 1997	0
U	CEGL001205	Salix geeyeriana / Calamagrostis canadensis Shrubland	G5	WY, ID, CO, UT, MT	YES		SALIX GEYERIANA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Cooper and Cottrell 1990, Hansen et al. 1991, Hansen et al. 1995, Johnston 1987, Kettler and McMullen 1996, Kittel et al. 1994, Kittel et al. 1999, Padgett et al. 1989, Tuhy and Jensen 1982, Youngblood et al. 1985	0

U	CEGL001206	Salix geeyeriana / Carex aquatilis Shrubland	G3	ID, UT, CO, WY, MT	YES	YES	SALIX GEYERIANA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Girard et al. 1997, Hansen et al. 1995, Jensen and Tuhy 1981, Kettler and McMullen 1996, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Padgett et al. 1988, Padgett et al. 1989, Youngblood et al. 1985, Youngblood et al. 1985b	0
U	CEGL001208	Salix geeyeriana / Deschampsia caespitosa Shrubland	G4	ID, MT, UT			SALIX GEYERIANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Jensen and Tuhy 1981, Montana Natural Heritage Program (MTNHP) n.d., Padgett et al. 1988, Padgett et al. 1989	0
U	CEGL002666	Salix geeyeriana / Mesic Forbs Shrubland	G3	UT, ID, WY, CO	YES		SALIX GEYERIANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Jensen and Tuhy 1981, Johnston 1987, Kettler and McMullen 1996, Kittel et al. 1999, Padgett et al. 1988, Padgett et al. 1989, Phillips 1977, Youngblood et al. 1985, Youngblood et al. 1985b	0
U	CEGL001211	Salix geeyeriana / Poa palustris Shrubland	GW	UT, WY, ID			SALIX GEYERIANA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Mutz and Queiroz 1983, Padgett et al. 1989, Youngblood et al. 1985	0
U	CEGL001225	Salix planifolia / Calamagrostis canadensis Shrubland	G4	WY, UT, CO	YES	YES	SALIX PLANIFOLIA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Baker 1989, Cooper and Cottrell 1990, Girard et al. 1997, Kittel et al. 1994, Kittel et al. 1999, Olson and Gerhart 1982, Padgett et al. 1989	0
U	CEGL001227	Salix planifolia / Carex aquatilis Shrubland	G5	UT, MT, WY, ID, CO	YES		SALIX PLANIFOLIA SEASONALLY FLOODED SHRUBLAND ALLIANCE	Baker 1989a, Cooper and Cottrell 1990, Hansen et al. 1988, Hansen et al. 1991, Hansen et al. 1995, Hess 1981, Hess and Wasser 1982, Jensen and Tuhy 1981, Johnston 1987, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996,	0
U	CEGL001230	Salix planifolia / Deschampsia caespitosa Shrubland	G2G3	UT			SALIX PLANIFOLIA TEMPORARILY FLOODED SHRUBLAND ALLIANCE	Hess 1981, Hess and Wasser 1982, Jensen and Tuhy 1981, Padgett et al. 1989	0

U	CEGL001806	Carex buxbaumii Herbaceous Vegetation	G3	UT, MT, ID, WY	YES	YES	CAREX BUXBAUMII SEASONALLY FLOODED HERBACEOUS ALLIANCE	Hansen et al. 1988, Mattson 1984, Moseley et al. 1991, Moseley et al. 1994, Padgett et al. 1989, Pierce 1986, Pierce and Johnson 1986	0
U	CEGL001811	Carex limosa Herbaceous Vegetation	G2	WY, CA, ID, MT, UT, WA, BC	YES	YES	CAREX LIMOSA SEASONALLY FLOODED HERBACEOUS ALLIANCE	Hansen et al. 1988, Hansen et al. 1991, Hansen et al. 1995, Kovalchik 1993, Padgett et al. 1989	0
U	CEGL001809	Carex pellita Herbaceous Vegetation	G3	CO, BC, ID, MT, UT, WA, OR	YES	YES	CAREX PELLITA SEASONALLY FLOODED HERBACEOUS ALLIANCE	Crowe and Clausnitzer 1997, Hansen et al. 1987a, Kittel et al. 1995, Kovalchik 1987, Padgett et al. 1988, Padgett et al. 1989	0
U	CEGL001821	Carex praegracilis - Carex aquatilis Herbaceous Vegetation	G3	ID, CA, UT, OR, WA			CAREX PRAEGRACILIS SEASONALLY FLOODED HERBACEOUS ALLIANCE	Brotherson and Barnes 1984, Crowe and Clausnitzer 1997, Evans 1989a	0
U	CEGL001502	Dasiphora fruticosa ssp. floribunda / Festuca idahoensis Shrub Herbaceous Vegetation	G4	ID, WY, MT	YES	YES	DASIPHORA FRUTICOSA SSP. FLORIBUNDA SHRUB HERBACEOUS ALLIANCE	Mattson n.d., Mueggler and Stewart 1980, Tweit and Houston 1980, Youngblood et al. 1985	0
U	CEGL001883	Deschampsia caespitosa - Carex microptera Herbaceous Vegetation	G2G3	WY, ID	YES	YES	DESCHAMPSIA CAESPITOSA SEASONALLY FLOODED HERBACEOUS ALLIANCE	Girard et al. 1997, Johnson 1961b, Walford et al. 1997, Youngblood et al. 1985	0

U	CEGL001677	Pseudoroegneria spicata - Poa secunda Herbaceous Vegetation	G4?	CO, WY, WA, MT, UT, OR, BC, ID	YES	PSEUDOROEGNERIA SPICATA HERBACEOUS ALLIANCE	Anderson 1956, Christensen 1963, Christensen and Welsh 1963, Daubenmire 1970, Fisser et al. 1965, Hall 1973, Johnson and Simon 1985, Johnson and Simon 1987, Kleiner 1968, Mueggler and Stewart 1980, Poulton 1955, Price and Brotherson 1987, Terwilliger et	0
U	CEGL001840	Schoenoplectus acutus Herbaceous Vegetation	G5	OR, MT, ID, CA, NV, WA		SCHOENOPECTUS ACUTUS - (SCHOENOPECTUS TABERNAEMONTANI) SEMIPERMANENTLY FLOODED HERBACEOUS ALLIANCE	Dethier 1990, Evans 1989a, Hansen et al. 1991, Hansen et al. 1995, Kunze 1994	0
U	CEGL001954	Caltha leptosepala Herbaceous Vegetation	G4	UT, ID, CO	YES	CALTHA LEPTOSEPALA SATURATED HERBACEOUS ALLIANCE	Ellison 1954, Johnston 1987, Kittel et al. 1999, Komarkova 1986, Padgett et al. 1988, Padgett et al. 1989, Sanderson and Kettler 1996	0
U	CEGL001942	Lupinus argenteus - Fragaria virginiana Herbaceous Vegetation	G3?	WY		LUPINUS ARGENTEUS HERBACEOUS ALLIANCE	Gregory 1983	0

Table 3. Summary of uncertainty in assignment of plant association names. Percent of total is in parentheses.

Number of plots assigned to the association level with high degree of certainty	90 (54%)
Number of plots assigned to the association with low degree of certainty	36 (22%)
Number of plots assigned to the alliance level only with certainty	27 (16%)
Number of plots assigned to the alliance level only with uncertainty	1 (<1%)
Number of plots assigned to the formation level only with certainty	1 (<1%)
Number of plots in which the formation level is unknown	6 (<1%)
Number of plots for which there is no equivalent NVCS type	6 (<1%)
<b>TOTAL</b>	<b>167</b>

Table 4. Summary of changes made to the preliminary classification of plant associations after the 2002 field season.

Minimum number of associations added to the preliminary classification	37
Total number of associations considered at least likely to occur in GTNP (101) and the minimum number of new associations sampled during 2002 (37), i.e., minimum number of total types in the provisional classification as modified after the 2002 field season	138
Number of associations considered unlikely to occur in GTNP and not sampled during the 2002 field season (dropped from the preliminary list, but still visible at the end of Table 2)	98
Minimum number of associations sampled during 2002	82
Percent of associations considered likely to occur in GTNP that were sampled during 2002 (Number of associations sampled during 2002 divided by the combined number of associations considered at least likely to occur in GTNP and new associations sampled during 2002; 82/138)	59%

Figure 1. The Modified-Whittaker plot design.

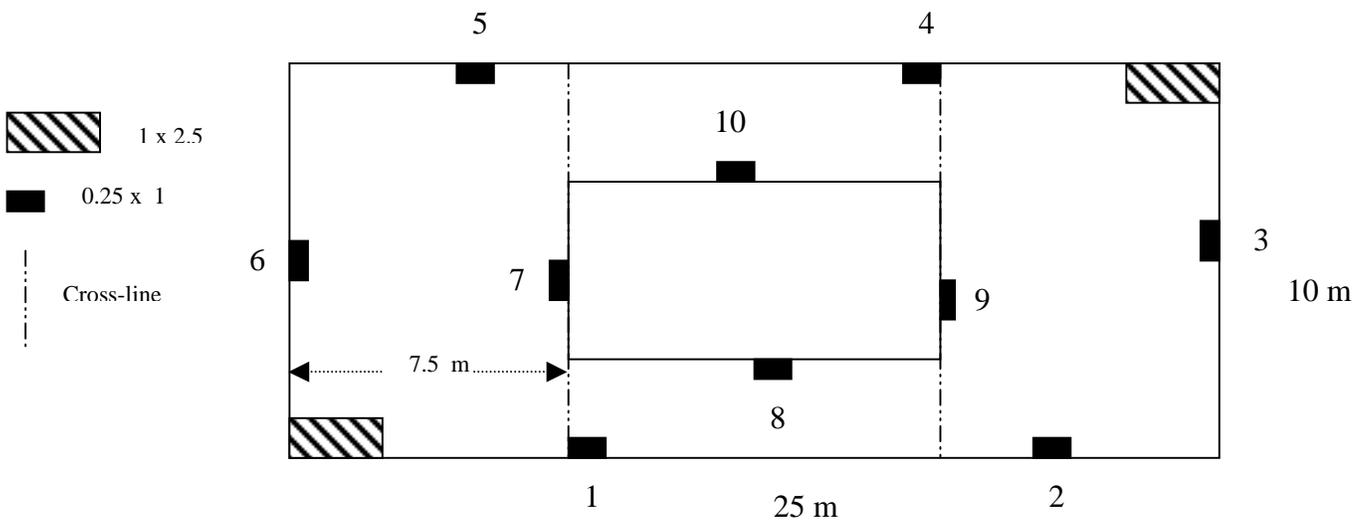
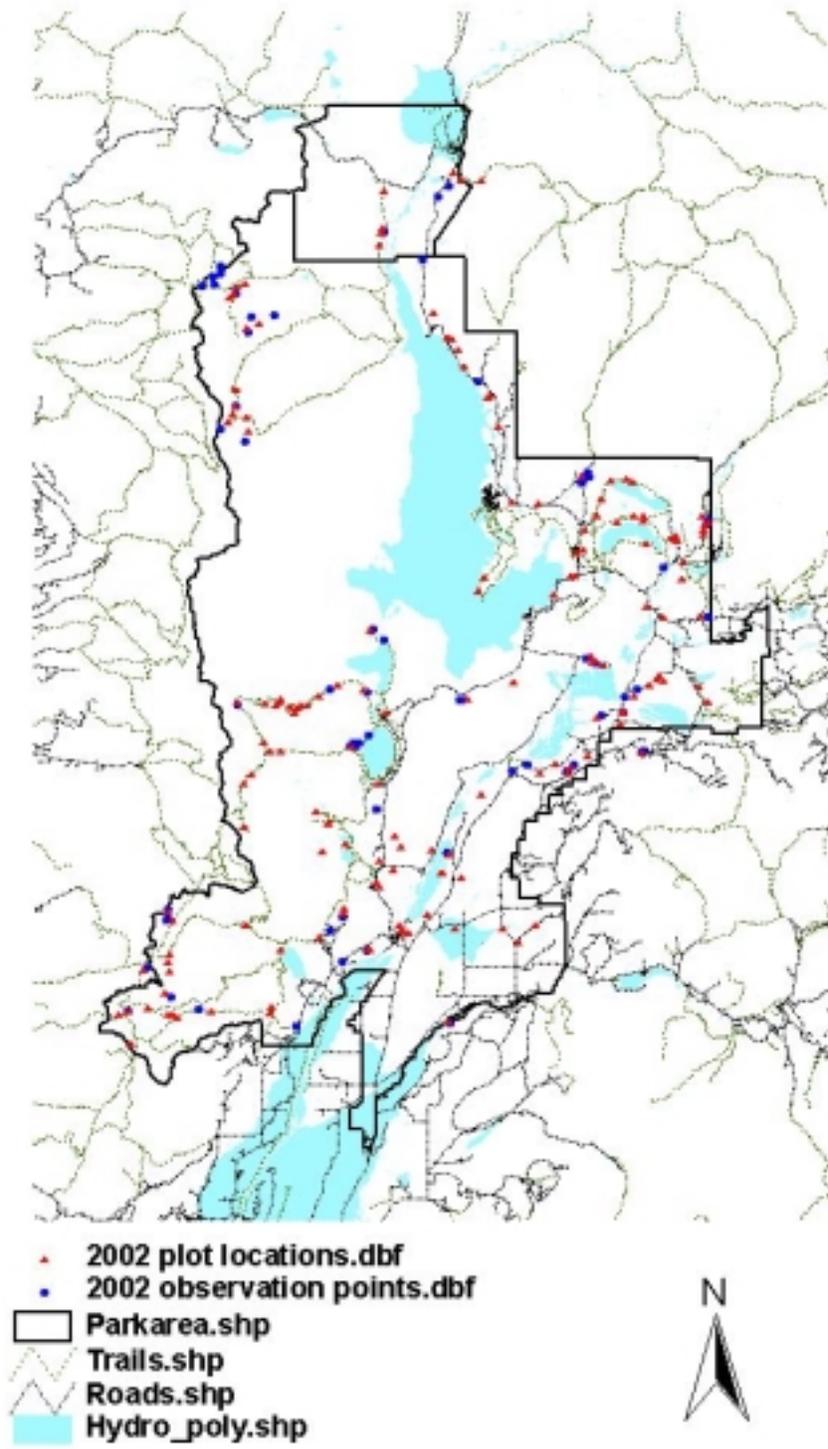


Figure 2. Plot and observation point locations within Grand Teton National Park. Red triangles represent plot locations. Blue circles represent observation point locations.



# **Appendix A**

## **Memo: Notes on the vegetation mapping project**

**To: Steve Haynes, Vegetation Branch Supervisor, GRTE**

**From: Klara Varga**

**October 2002**

### Overview

As a person who has done botanical field work in the Greater Yellowstone Ecosystem for nine summers, I provided technical assistance to the vegetation mapping crews. My technical assistance was requested by both the contractor and the vegetation branch supervisor of Grand Teton National Park, who is also my supervisor. I was also asked to be a park representative to assess data quality, efficiency of operation, and other issues that came up.

### Training

A week in June was devoted to training the crew, and I attended this at the request of the vegetation branch supervisor. This took place Tuesday June 11 to Friday June 14. Tuesday was all indoors, as various folks gave slide presentations to give an overview of the project. Wednesday morning was a continuation of Tuesday, then in the afternoon we went to the field. A Modified-Whittaker plot (Mod-Whit) was set up in a stand of aspen, then we discussed protocol. George informed the crew that all species besides trees would be collected at every plot, and that there would be no time to key plants during the field day. He demonstrated how to set up the survey tapes, and explained how each crew member could keep things rolling along by moving seamlessly from job to job. Diane and Cory then gave an overview of the fuels data collection procedures. Everyone attended this session, which meant there were about a dozen people in the field.

A decision was made to have an intense training session on Thursday for just the field crews - the folks who would be doing the daily work of data collection. This would facilitate the training by having less people trying to huddle around a microplot or a fuels transect. With this in mind, I was encouraged by people at the training to skip Thursday's session. I regret that I can't recall exactly who told me to skip Thursday. I now realize I should have attended that day. I also should have been communicating more regularly with the vegetation branch supervisor, for he knew the park policies and the background for the mapping project, and I didn't.

I did attend Friday's session with the computer specialist to discuss gradsects. Most of the computer and statistical discussion was over my head, though I did participate in the talk regarding how to divide the park into bio-physical units (BPUs). After the group tried unsuccessfully to group the mountains and the valley floor together using only three or four defining characteristics, I suggested we use one set of characters for the backcountry, and another for the valley floor. The meeting progressed efficiently after that. The mountain BPUs were split by elevation and solar budget, while the valley floor was divided based on geology, agricultural history, solar budget, and proximity to water.

### The Field Season

During the field season I worked one day per week with the vegetation mappers, with some exceptions. They were split into two crews, so I only worked with half of them each week. I spent a few hours with the whole crew in the herbarium, looking at various specimens to teach them

basic grass identification. When they were on overnight trips in the backcountry I didn't work with them.

At the beginning of the summer, my day with a crew would include teaching field identification of various common native species. This teaching was worked in with data collection, so only half the crew received the instruction each day that I went out with them. This was beneficial for the one to three individuals who were with me when I taught, for they received very direct tutoring. However, whoever was not there missed out for a week or more, until I got to work with them. Due to the changing makeup of the two data collection crews, there were some individuals on the mapping crew with whom I didn't spend time in the field for a couple of months.

After a few weeks my role with the crews was simply an extra body doing the MOD-WHIT, and I did very little instruction. I was helping the crew get a plot done more quickly, assessing data quality and crew morale, as well as representing the Resources division of the park.

The last two weeks of the field season I was directed by the vegetation branch supervisor to spend as much time as possible with the crews to assess data quality and monitor some other issues. When I called Donna to arrange this, she turned me down, saying no help was needed. When I explained that I'd been directed by my supervisor to go out with her crew, to see what was going on, whether or not help was actually needed, she asked me to NOT go out with her crew. I reported this to the vegetation branch supervisor, who then made a phone call or two, with the result that by the end of the day Donna called me and invited me to spend as much time as I desired with any part of the crew I deemed necessary. I spent four field days in a row with the crews on August 28 and 29, and September 3 and 4.

#### Feasibility of doing three Modified Whittaker plots every day, in addition to gathering fuels data:

I went to the field with the vegetation mappers once a week during their field season, missing only weeks involving back country work, either on their part or mine. There was only one day that three plots were done in my presence, and that was a rather unique day. For starters, the plots were close to the AMK, so driving/commute time was minimized. There were no chores to be done before getting out to the field, and one of the plots was a monoculture of Eleocharis, which made the "Mod-Whit" and the data gathering for fuels go very quickly.

#### Things that slow production:

- Hiking into a plot: A two or three mile hike into a plot can take an hour.
- Driving to a plot: Driving from the AMK to the south end of the park can take forty-five minutes or even an hour if there is construction.
- Office chores
  - Communications
    - Phone calls: Even the mobility of the cell phone has limitations, because there is not reception everywhere in the park.
    - Reaching people when they are in the office sometimes requires delaying field work, especially when they start work later than the field crew.
    - E-mails: when you can't reach someone by phone, even the "quick, easy e-mail" takes time to compose.
  - Logistics

- Backcountry reservations: Learning about the permits, cabins, and caches takes time, then actually successfully contacting the correct person to make a reservation takes more time.
- Paperwork: There is ALWAYS some to be done.
- Planning the next day's field work: Some field reconnaissance and studying of maps is required to use the crews' time most efficiently.
- Equipment maintenance: Vehicles need gas and oil changes, computers need data, GPS units need to be downloaded, etc, etc.
- Plant pressing: At least forty and sometimes as much as eighty specimens were collected PER DAY. Processing these, and getting them into plant presses takes a significant amount of time.

Things that may speed production:

- High crew morale: A happy crew that has achievable goals works harder.
- Judicious scheduling of overtime: Having the crews work an occasional fifth ten hour day in a week may purchase two more plots. However too much overtime can lead to burnout, which effects morale and the quality of the data being gathered. The crews should have one weekday per payperiod to take care of personal chores in town during business hours. Everyone eventually needs to get to town during such hours for things like doctor's appointments, car maintenance, banking, and shopping for life's necessities.
- Hire more people: If the summer goal is unreachable by the number of people hired during the summer of 2002, then hire more folks in 2003.
- Allow some plant keying and reduce the number of specimens collected: See "Plant Keying Issues."

Modified Whittaker Plots vs. Fuels Data Collection

I was asked which one of these items takes the most time, and whether the collection of one was slowing down the other. Based on what I saw, the two chores do not hamper each other. A three-person crew of multi-talented people who are proficient at both jobs usually finishes both sets of data collection at about the same time. Individuals move from "Mod-Whit" to fuels and back again as needed to keep working as efficiently as possible. Occasionally one aspect will take longer than the other, in which case while two people finish up, the third will do an "observation point" nearby in a different plant community, or reconnoiter the area looking for the best place to put another plot. I never saw someone simply standing around waiting for others to finish a plot.

In most cases a three-person crew is the fastest at getting everything done. However, a two person crew including Cory Bolland may be faster than some three person crews. Cory preferred collecting fuels data to doing a "Mod-Whit", and to my knowledge, only did fuels all summer. That was just fine, because he is "Super Fuels Man". He is very fast, efficient, thorough, and accurate when he collects fuels data, and I don't think anyone else on the crews quite compares to his ability.

Plot Sizes

At the beginning of the summer, small and large sized plots could be done, however most of the time large ones were conducted. After two or three weeks a decision was made to only do small ones in order to save time. I don't know who made the decision, or what the reasoning was that determined that all plots for the duration of the field season must be small, regardless of whether it would actually save time. I got the impression that someone thought that it was statistically important to keep all the plots the same size once the decision was made to stop doing large plots.

Small plots were supposed to save time in a number of ways. In areas where moving through the plot was a challenge due to heavy downfall or thick brush, there would be less feet of tape to set up and then moving from one end of the plot to the other would be easier and quicker. In more open areas, small plots were theoretically faster for the same reasons, but I am not convinced that it made that much difference. I do know that a certain amount of planning took place to capture the variability of each site in a small plot, and some variability was not captured because the small plot just was not big enough.

### Communication Issues

Donna told me there were a number of times that Dirk told Cory things about the crew's performance or mentioned other issues to him. Dirk should have maintained contact with Donna, rather than bypassing the crew boss to talk about performance or other issues with a field crew member. This reduces the ability of the crew boss to lead, for the crew loses understanding of who is the actual crew boss.

The phone service, or lack of it, posed some challenges. There is only one landline phone at the AMK, and that is a community payphone some distance from the crew's office and housing. Cell phone coverage in the park is patchy at best, and one must make and receive calls from specific areas. Despite all this, Donna checked her cell phone messages often, and returned my calls in a very timely manner. When she was in the backcountry, I may not be called back for days, which is no surprise, but if she was on the valley floor, I often heard back from her within the hour.

### Data Quality

The vegetation mapping crew may not have achieved the goal regarding the number of plots done this summer, but the plots that they did get done have good data. Everyone on the crew worked very hard, and did their work thoroughly and conscientiously. They wanted their work to count, and so did all they could to collect data in the manner required by the protocol for "Mod-Whit" and fuels data collection.

### Plant Keying Issues

In an effort to increase plot production, George told everyone at the training session in June to collect specimens. There would be no time for keying plants while on the job. Folks could key at lunch or after work only.

I am not sure this was a good decision. Keying is an important tool for learning the difference between one species and another, which is important for identifying every species in a "Mod-Whit" plot, and collecting a specimen of every species. While there certainly wasn't time for hours of pondering over an obscure sedge or grass, I think it would have been useful for the crew to have permission to at least check up on the difference between two similar common species, such as *Symphoricarpos oreophilus* and *S. albus*. In this case, learning how to tell them apart helps insure that when both are present one recognizes the fact and collects specimens of each.

Time spent keying plants and learning to identify the common species would save time in the long run. There would be more time spent collecting data instead of plant specimens, and less time spent in the winter studying the pressed plants. Less time would be needed during the summer to process the specimens because there'd be less to collect, label, press, and dry.

### Complaints of Crew

- Poor planning: The field crews often did not know from one day to the next where they would be going or what they would be doing. A backcountry trip was modified at the last minute, which meant that some people ate dry instant light food when they could have brought fresh produce. Scheduling time to do town errands was difficult or impossible when they didn't know if they were going to work on Friday or not.
- Surveyor's ropes: Setting up a plot with these is frustrating and time consuming. The rope gets tangled very easily, requiring much time to unravel and straighten out. Eventually the crew got some open reel fiberglass tapes that wind up similarly to a fishing reel. These rarely if ever tangle, and made set-up and take-down much faster.
- Impossible goals led to too much overtime: In an effort to get more plots done, the crews were putting in some eleven and twelve hour days, Monday through Friday. This just seemed to lead to burnout and exhaustion.
- Aerial photos: These were never made available, and would have aided in site selection and navigation.
- No time to key: See above.

### Suggestions

- Make it clear to everyone who the crew boss is. There should be no question whom the crew boss is, even if some crew members are employed by the contractor and others by the Park Service.
- Follow the chain of command: If there is a problem or issue, the contracting officer's technical representative needs to talk to the crew boss first and in private rather than to a single member of the crew.
- Up-front about overtime: When interviewing and hiring, make it absolutely clear how much overtime will be expected. For example, the crews will do fifty to sixty hours per week all summer long.
- Don't overdo the overtime: It is one thing to ask people to work five, 10 hour days. It is another to work them five, 11-12 hour days per week, for weeks on end.
- Allow time for some plant keying: This improves the quality of the data; allows people to further their skills and knowledge; raises the morale of field botanists; and saves time over the course of the project.

# Grand Teton National Park Vegetation Mapping Project

Preliminary Progress Report, 2002 Field Season

September 30, 2002

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## **Plot data collection**

A total of 155 plots were sampled. A total of 68 observation points were taken. Plots and observation points were well-distributed spatially across the park where trails and roads are present.

The draft classification lists 200 plant associations that may exist in Grand Teton National Park. Of these associations, 20 have previously been documented within the park, 66 are thought highly likely to occur, 11 likely to occur, and 103 unlikely to occur in the park (Table 1). A final determination of the associations sampled during 2002 cannot be made until all plant specimens have been identified (approximately 5000 specimens), but the raw field data suggest that a minimum of 50 associations were sampled during 2002. This estimate is well within the recommendation by NatureServe that 40% of associations be sampled during the first field season.

When the identities of associations from 2002 have been determined, goals for the 2003 season will be determined more specifically. NatureServe recommends that approximately three plots be sampled within each association. Primary emphasis should be placed on sampling the remaining 1-2 plots within associations sampled during 2002 and locating and sampling associations listed in the draft classification as either occurring or likely occurring in Grand Teton National Park. Habitat requirements of species that define the associations of interest and vegetation layers within a GIS should be used to determine potential locations of targeted associations.

## **Problems of the 2002 field season and ideas to improve future data collection efforts**

The following is a list of problems encountered during the 2002 field season, and suggested solutions. We feel that much high-quality data was collected during the 2002 field season. The Modified-Whitaker plots worked well, and the field crew learned quickly how to do all of the sampling. The suggestions listed below will, we feel, allow the field sampling to continue with the same rigorous collection of fuels data and vegetation information.

**Problem:** Tangled communications between the GTNP Technical Representative and the WYNDD Project Manager; instructions and opinions on the progress of the project passed directly between the Technical Representative and crew members, without the knowledge of the crew leader. This resulted in confusion and poor morale.

**Suggestions:**

- (1) Although communication between the Park's Technical Representative (and other staff) on the one hand and crew members on the other can be useful and should be expected, discussions about methods, progress, and scheduling must take place between the Technical Representative and the WYNDD Project Manager, not between the Technical Representative and crew members.
- (2) All field-crew members should be hired and supervised by WYNDD, the entity ultimately responsible for conducting the field work. WYNDD is an independent contractor with the responsibility for accomplishing the field work, and WYNDD's project manager carries that responsibility on a day-to-day basis. To discharge this responsibility, she must be given the authority to supervise the field crews and make other final decisions after consultation with the Park. Park staff should continue to have the responsibility for designing the fuel sampling methods and to be closely involved in training the crews in fuel sampling.

**Problem:** Infrequent communication between the Technical Representative and the Project Manager. An example of this problem is the confusion and the acrimony that arose over WYNDD's decision to change the plot size and over the wishes of the field crew members to change the work schedule.

**Suggestions:**

- (1) Regular meetings between WYNDD's project manager and the Park's Technical Representative (and other staff as needed).
- (2) Hire an extra crew member to allow WYNDD's Project Manager time out of the field to attend meetings.

**Problem:** Ambiguity in the Task Agreement's wording that specifies the responsibilities and authority of the Park Service and WYNDD.

**Suggestion:**

- (1) Responsibility and authority for tasks in the field sampling need to be clearly stated in any future task agreement.

**Problem:** Fewer than the 230 plots specified in the agreement were sampled during the 2002 field season. Sampling proceeded more slowly than expected due to high species richness and intense fuel sampling.

**Suggestions:**

- (1) The total number of plots to be sampled on the project needs to be re-evaluated. The number of plots specified in the agreement seems to be based on the assumption that 200 plant associations will be found in the Park (Table 1). The draft classification of plant associations, though, suggests that only 108 associations are likely to occur in the park. Three plots within each association likely to occur in the park results in 324 total plots, or 162 plots per field season.
- (2) Hire an additional field crew member to allow the Project Manager time for scouting potential sampling sites with the target plant associations.

**Problem:** Inability to arrange for use of backcountry cabins and caches. During 2002, arrangements for cabins and caches could not be made more than a week in advance, and there were communication problems when the Technical Representative was required to work away from the park.

**Suggestions:**

- (1) The Project Manager should be introduced, in person, to Park staff who are in charge of cabins and caches to facilitate communication. We understand that the Technical Representative has duties unrelated to this project that require him to travel out-of-state for unknown amounts of time. If this suggestion is untenable given the structure of the Park Service, we suggest that a back-up Park representative be designated to make arrangements when the Technical Representative is away from the park.
- (2) The sampling schedule and arrangements should be made earlier, perhaps before the field season.

**Unforeseen costs**

As of September 27, some charges to the budget have not cleared. Estimates of unforeseen costs will be provided in the final report. At present, we are aware of only three areas in which expenditures might have deviated or likely will deviate from the budget. First, the field crews may have worked more hours than predicted, resulting in higher costs for overtime. Second, the field crews may have traveled more miles than predicted, resulting in larger travel costs. Third, the larger-than-expected number of plant species in the sample plots has produced an unexpectedly large number of specimens to be identified, and the expense for this may exceed the budgeted amount.

Table 1. Estimated adequacy of sampling of Grand Teton National Park plant associations during 2002 field season.

A. Plant Associations Possibly in Grand Teton NP	
Category	Number of Associations
1. Documented	20
2. Highly Likely to Occur	66
3. Less Likely to Occur	11
<b>(Total Documented or Likely to Occur</b>	<b>108)</b>
4. Unlikely to Occur	103
Total Possible Associations	211
B. Results of 2002 Field Season	
Estimated # of Associations Sampled	% of Associations Documented or Likely to Occur
50 associations	46%

## I. PLOT METADATA

### Plot Identification and Location

Coordinates (record one):

UTM: \_\_\_\_\_ m E \_\_\_\_\_ m N Zone \_\_\_\_\_ Datum \_\_\_\_\_

Lat \_\_\_\_\_ N, Long \_\_\_\_\_ W

T \_\_\_\_\_ N, R \_\_\_\_\_ W, Sec \_\_\_\_\_, \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4. \_\_\_\_\_ PM

Map Name \_\_\_\_\_ Scale \_\_\_\_\_ BPU: \_\_\_\_\_

Nearby topographic feature and azimuth from plot \_\_\_\_\_

Elevation: \_\_\_\_\_ ft / m (circle one) GPS Rover file \_\_\_\_\_

Aspect in degrees: \_\_\_\_\_ Slope in degrees: \_\_\_\_\_

### Sampling Method, Plot Description and Documentation

Plot Type. (Check all that apply.)

Modified Whittaker. Plot size: 10m x 25m 20m x 50m

Observation Point. Accuracy Assessment Point.

Mature tree density plot. Dimensions \_\_\_\_\_ x \_\_\_\_\_ m

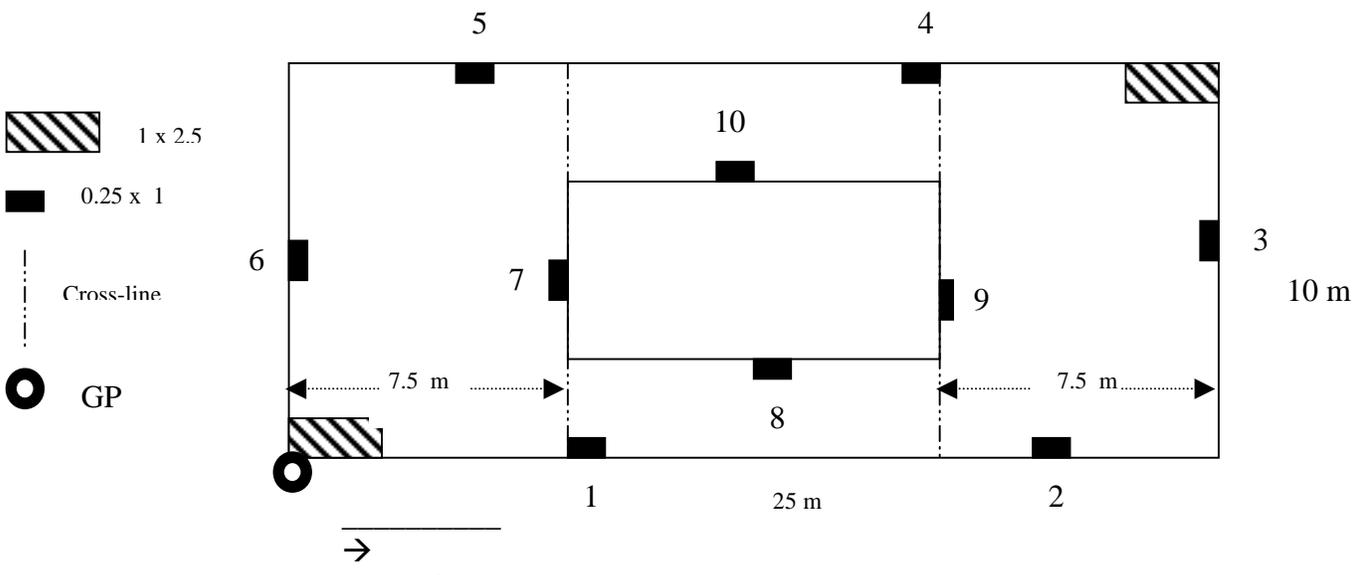
Sapling/seedling tree density plot. Dimensions \_\_\_\_\_ x \_\_\_\_\_ m

Photographs (number and brief description) \_\_\_\_\_

Why was this plot done? What does it illustrate? \_\_\_\_\_

Taxonomic Authority for Species \_\_\_\_\_

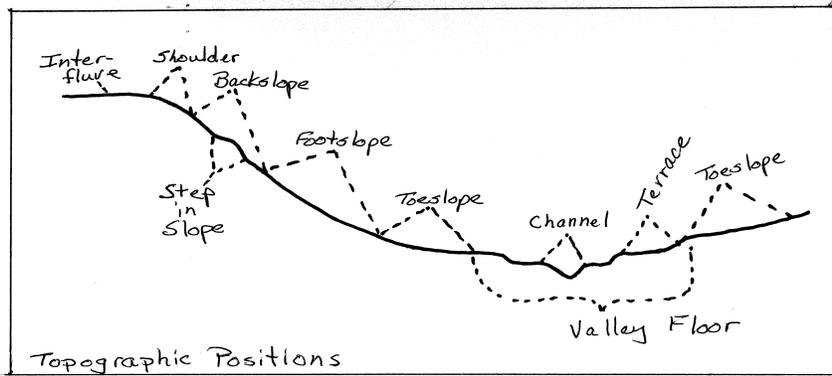
Sketch sample unit layout:



## II. PLOT ENVIRONMENT

Topographic position (circle all that apply):

Interfluvial    Shoulder    Backslope    Footslope    Toeslope    Step in slope    Valley floor    Terrace    Channel



Describe if necessary: \_\_\_\_\_

Hydrologic Regime (circle one):

Permanently flooded    Periodically flooded    Saturated    Mesic    Dry    Xeric

Soil features (texture, rockiness, salt, etc.): \_\_\_\_\_

Bedrock (office): \_\_\_\_\_

Surface deposit (circle one):    Residual    Colluvial    Aeolian    Alluvial    Glacial Outwash

(Surface Notes) \_\_\_\_\_

---

### Disturbance evidence

Fire scars    Livestock grazing    Windthrow    Insects    Mistletoe    Cultural    \_\_\_\_\_

Disturbance Notes \_\_\_\_\_

Weed Notes (number, distribution) \_\_\_\_\_

General Notes \_\_\_\_\_

### Accuracy assessment

Uncertainty about measured or estimated values \_\_\_\_\_

Completeness of species lists, by stratum \_\_\_\_\_

**III. PLOT VEGETATION DATA.**

**A. GENERAL DESCRIPTION**

**Table VI. Canopy Cover by Stratum.**

Code      1      3      10      20      30      40      50      60      70      80      90      98

100

Cover Classes for Strata (% cover): <1 1-5 5-15 15-25 25-35 35-45 45-55 55-65 65-75 75-85 85-95 95-99 100  
 Life Forms: TEnl, TCDBl, SEnl, SEbl, SEMi, SCDBl, SCDEX, Fann, Fper, Gann, Gper, Succ, Lian, Fern, Lich, Moss, Cupl, Epip

Stratum	Height	Cover Class by Life Form and Total* for Stratum (Record only distinct stata, usu. with $\geq$ 5% cover.)
<b>I.</b> Lichen/ Moss		
<b>II.</b> Herbaceous		
<b>III.</b> Tall Herb. (> 50 cm = 20 in)		
<b>IV.</b> Dwarf Shrub ( $\leq$ 50 cm = 20 in)		
<b>V.</b> Shrubs ( $\geq$ 50 cm = 20 in)		
<b>VI.</b> Tree Subcanopy		
<b>VII.</b> Tree Canopy		
Total*	NA	<b>Total Canopy Cover*</b>

\* Estimate cover of all vegetation within macroplot. This is NOT simply the sum of values for separate strata

Description of Vegetation: Incl. structure, dominants, heterogeneity of strata \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Successional Stage (describe): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**GTNP 2002 Field Season Re-named Plots and  
Observation Points**

<u>Old Plot Name</u>	<u>New Plot Name</u>
0201015b	0201100
0201016b	0201101
DeathShelf01	0201102
DeathShelf02	0201103
02WY001	0201104
DeathShlf03	0201105
DeathShelf04	0201106
DeathShelf05	0201107
WEEDS83002	0201108
G-01	0201109
G-02	0201110
G-03	0201111
G-04	0201112
G-05	0201113
G-06	0201114
G-07	0201115
G-08	0201116
G-09	0201117
0202059 8/6/02	0202129
0202060 8/6/02	0202130
0202061 8/6/02	0202131
0202062 8/7/02	0202132
0202063 8/7/02	0202133
0202064 8/7/02	0202134
0202065 8/8/02	0202135
0202066 8/8/02	0202136
0202067 8/12/02	0202137
0202068 8/12/02	0202138

Plot num	Picture Desc	Camera	Roll	Pix num	Have photo?	Comments from 'Photos' sxn on data sheets	General plot info
0201001	general	Dig			Y		Bromus monoculture
0201001	line 1				Y		
0201001	line 2				Y		
0201001	line 3				Y		
0201001	line 4				Y		
0201002	general	Dig			N	We thought there was only had enough	A. tridentata stand
0201002	line 1				Y	memory for 2 fuels pix.	
0201002	line 2				Y		
0201002	line 3				N		
0201002	line 4				N		
201003	general	Pentax	1	1	Y*	Have these pix, but can't tell which is	A. tridentata stand
201003	line 1	Pentax	1	2	Y*	which.	
201003	line 2	Pentax	1	3	Y*		
201003	line 3	Pentax	1	4	Y*		
201003	line 4	Pentax	1	5	Y*		
201004	general	Pentax	1	13	Y		PICO over w/ PICO, ABLA, PIEN under
201004	line 1	Pentax	1	9	Y	Taken from end of buffer	
201004	line 2	Pentax	1	10	Y	Taken from end of buffer	
201004	line 3	Pentax	1	11	Y	Taken from end of buffer	
201004	line 4	Pentax	1	12	Y	Taken from end of buffer	
201005	general	Pentax	1	18	Y		PICO/ABLA
201005	line 1	Pentax	1	14	Y		Picture taken from buffer-10 ft away.
201005	line 2	Pentax	1	15	Y		
201005	line 3	Pentax	1	16	Y		
201005	line 4	Pentax	1	17	Y		
201006	general	Pentax?	1?	24	Y	Taken from center of plot.	ARTR/ARAR
201006	line 1			20	Y		
201006	line 2			21	Y		
201006	line 3			22	Y		
201006	line 4			23	Y		
201007	general	Pentax?	1?	29	Y		PICO/ABLA
201007	line 1			25	Y		

201007	line 2			26 Y	
201007	line 3			27 Y	
201007	line 4			28 Y	
201008	general	Pentax? 1?		33 Y	ABLA/PICO
201008	line 1			28 Y	
201008	line 2			29 Y	
201008	line 3			30 Y	
201008	line 4			31 Y	
201009	general	Pentax	[32&33?] N:	overexp	ABLA/PICO
201009	line 1			34 Y	
201009	line 2			35 Y	
201009	line 3			36 Y	
201009	line 4			37 N:	overexp
201010	general	Pentax? 2?	2or3		ARTTRI/PURTRI
201010	line 1			3	
201010	line 2			4	
201010	line 3			5	
201010	line 4			<b>6</b>	
201011	general	Pentax	<b>5?</b>		
201011	line 1			6	
201011	line 2			7	
201011	line 3			8	
201011	line 4			9	
201012	general	Pentax		10	Meadow
201012	line 1			11	
201012	line 2			12	
201012	line 3			13	
201012	line 4			14	
201013	general	Pentax	16?		Burned PSME
201013	line 1		18?		
201013	line 2			19	
201013	line 3			20	
201013	line 4			21	

201014	general	Pentax	22/23?		PICO w/shrubs
201014	line 1		24		
201014	line 2		25		
201014	line 3		26		
201014	line 4		27		
201015	general	Pentax	28/29?		Meadow
201015	line 1		31?	Only one fuels pix taken.	
201015	line 2			No explanation listed.	
201015	line 3				
201015	line 4				
201016	general	Pentax	31/32?	Aspen with Cory.	Aspen
201016	line 1		32		
201016	line 2		33		
201016	line 3		34		
201016	line 4		35		
0201101	general	Digital	61 Y	Toward the Grand	Burned sagebrush
0201101	line 1		60 Y		
0201101	line 2		58 Y		
0201101	line 3		57 Y		
0201101	line 4		55 Y		
0201100	general	Digital	Y	Klara holding sign	Purshia and Artemisia
0201100	line 1		Y		
0201100	line 2		Y		
0201100	line 3		Y		
0201100	line 4		Y		
0201017	general	Pentax	3 35		Single strata of PIEN
0201017	line 1		4 1		
0201017	line 2		2		
0201017	line 3		3		
0201017	line 4		4		
0201018	general	Pentax	4 5	Valerie in PIEN	PIEN over with ABLA under
0201018	line 1		6		
0201018	line 2		7		

0201018	line 3			8		
0201018	line 4			9		
0201019	general	Kodak	1	1	NW corner looking to center	Patchy sagebrush
0201019	line 1			2		
0201019	line 2			3		
0201019	line 3			4		
0201019	line 4			5		
0201020	general	Kodak	1	6		ARTR/Lupinus
0201020	line 1			7		
0201020	line 2			8		
0201020	line 3			9		
0201020	line 4			10		
0201021	general	Kodak	1	11		ARTR/PUTR
0201021	line 1			12		
0201021	line 2			13		
0201021	line 3			14		
0201021	line 4			15		
0201022	general	Kodak	1	16	From GPS corner looking SE	ARTR/Balsamorhiza
0201022	line 1			17		
0201022	line 2			18		
0201022	line 3			19		
0201022	line 4			20		
0201023	general	Kodak	1	21, 22	Taken from corner opposite GPS corner	ARTR/PUTR
0201023	line 1			23		
0201023	line 2			24		
0201023	line 3			25		
0201023	line 4			26		
0201024	Obs Point	Kodak	1	27		Large depression surrounded by sagebrush
0201025	general	Kodak	1	28		Willow type
0201025	line 1			29		
0201025	line 2			30		
0201025	line 3			31		
0201025	line 4			32		

0201026	ObsPoint	Kodak	1	33	Lisa holding sign	Marshy area
0201027	general	Kodak	1	34		Aspen/mixed conifer
0201027	line 1			35		
0201027	line 2			36		
0201027	line 3				Out of film	
0201027	line 4				Out of film	
0201028	general	Kodak	2	1		ARTR/ARAR
0201028	line 1			2		
0201028	line 2			3		
0201028	line 3			4		
0201028	line 4			5		
0201029	general	Kodak	2	6		ARAR
0201029	line 1			7		
0201029	line 2			8		
0201029	line 3			9		
0201029	line 4			10		
0201030	general	Kodak	2	11	"Valerie amid the wildflowers"	Aspen overstory w/sparse shrub understory
0201030	line 1			12		
0201030	line 2			13		
0201030	line 3			14		
0201030	line 4			15		
0201031	ObsPoint	Kodak	2	16	Lisa holding board	Artemisia/Chrysothamnus on steep slope
0201032	general	Kodak	2	17		ARTR/Helianthella
0201032	line 1			18		
0201032	line 2			19		
0201032	line 3			20		
0201032	line 4			21		
0201033	general	Kodak	2	22	Photo along azimuth w/Valerie setting up tape.	ABLA/PICO/VASC
0201033	line 1			23		
0201033	line 2			24		
0201033	line 3			25		
0201033	line 4			26		
0201034	general	Pentax	6	20	Brandt holding sign saying 33-mislabeled	PIEN/ABLA/MEFE/VAME

0201034	line 1			21		
0201034	line 2			22		
0201034	line 3			23		
0201034	line 4			24		
0201035	ObsPoint	Pentax	6	25	Open area at bottom of avalanche chute	Poa, Heracleum.
0201036	general	Pentax	6	26 or 27		ARTR/SPBE, Balsamorhiza
0201036	line 1			25 or 26	Top of plot looking down toward Bradley and Taggart. Only one picture taken for film shortage reasons and homogeneity.	
0201036	line 2					
0201036	line 3					
0201036	line 4					
0201037	general	Pentax	6	27 or 28	Looking downhill	Mixed-con over w/ Vacc and ABLA seed's under
0201037	line 1			28 or 29		
0201037	line 2			29 or 30		
0201037	line 3			30 or 31		
0201037	line 4			31 or 32		
0201038	general	Diane's camera		23		ABLA/PICO/POTR
0201038	line 1	Pentax	6	36		
0201038	line 2	Diane's camera		20		
0201038	line 3			21		
0201038	line 4			22		
0201039	ObsPoint	Diane's camera		24		Brome pasture
0201040	general	Pentax	7	1 Y		ABLA over w/ PIEN & PSME. mostly shrub understory
0201040	line 1			2 Y		
0201040	line 2			3 Y		
0201040	line 3			4 Y		
0201040	line 4			5 Y		
0201041	general	Pentax	7	6 Y		Alpine
0201041	line 1			7 Y		
0201041	line 2			8 Y		
0201041	line 3			9 Y		
0201041	line 4			10 Y		
0201042	general	Pentax	7	11 N		Subalpine meadow
0201042	line 1			12 Y		

0201042	line 2			13 Y		
0201042	line 3			14 Y		
0201042	line 4			15 Y		
0201043	ObsPoint	Pentax	7	16 Y		Ave. chutes interspersed with PIAL, ABLA, PIEN
0201044	general	Pentax	7	17 Y	Taken from GPS point	Rocky alpine area
0201044	line 1			18 Y		
0201044	line 2			19 Y		
0201044	line 3			20 Y		
0201044	line 4			21 Y		
0201045	general	Pentax	7	22 Y		Meadow w/ Ligusticum, Delphinium over
0201045	line 1			23 Y		
0201045	line 2			24 Y		
0201045	line 3			25 Y		
0201045	line 4			26 Y		
0201046	general	Pentax	8	3 Y		Meadow w/ Aster, Senecio, Lupine, Ligusticum
0201046	line 1			4 Y		
0201046	line 2			5 Y		
0201046	line 3			6 Y		
0201046	line 4			7 Y		
0201047	general	Pentax	8	8 Y		ABLA/PIEN, Aster, Elymus
0201047	line 1			9 Y		
0201047	line 2			10 Y		
0201047	line 3			11 Y		
0201047	line 4			12 Y		
0201048	ObsPoint	Pentax	8	13 Y		Ivesia, Senecio, Agoseris
0201049	general	Kodak	1	1		PICO w/ ABLA & PIEN. Tall herbaceous under
0201049	line 1				No fuels pix; camera lens protector broken, couldn't keep open.	
0201049	line 2					
0201049	line 3					
0201049	line 4					
0201050	general				No pix; see plot above	
0201050	line 1					
0201050	line 2					

0201050	line 3					
0201050	line 4					
0201051	general	Kodak	4?	7 Y		Mature aspen w/ tall herb layer
0201051	line 1			Y		
0201051	line 2			Y		
0201051	line 3			Y		
0201051	line 4			Y		
0201052	general	Kodak	4?	12 Y		Mixed conifer w/scattered POTR. Lots DD wood
0201052	line 1			13 Y		
0201052	line 2			14 Y		
0201052	line 3			15 Y		
0201052	line 4			16 Y		
0201053	general	Kodak	4?	21 Y	Valerie holding sign	Aspen grove
0201053	line 1			17 Y		
0201053	line 2			18 Y		
0201053	line 3			19 Y		
0201053	line 4			20 Y		
0201054	general	Kodak	5	12 Y	Photos 1-11 on roll 5 are junk	PICO w/ PICO & ABLA under. Lots DD wood.
0201054	line 1		4?	22 Y		
0201054	line 2		4?	23 Y		
0201054	line 3		4?	24 Y		
0201054	line 4		4?	25/26 Y		
0201055	general	Kodak	5	16 Y		PICO/ABLA over w/ PIFL/PSME subcanopy.
0201055	line 1			12 Y		
0201055	line 2			13 Y		
0201055	line 3			14 Y		
0201055	line 4			15 Y		
0201056	general	Kodak	5	17 Y		Patchy PICO w/ SPBE
0201056	line 1			18 Y		
0201056	line 2			19 Y		
0201056	line 3			20 Y		
0201056	line 4			21 Y		
0201057	ObsPoint	Kodak	5	23 Y		Aspen stand w/ few mature PICO

0201058	ObsPoint	Kodak	5		22 Y		Salix, Rhamnus
0201069	general	Canon	1		11		ABLA over, tall forbs under
0201069	line 1				12		
0201069	line 2				13		
0201069	line 3				14		
0201069	line 4				15		
0201070	general	Canon	1		20	Valerie with sign	Mixed conifer w/ dense shrub under
0201070	line 1				16		
0201070	line 2				17		
0201070	line 3				18		
0201070	line 4				19		
0201071	general	Canon	1		21	Valerie holding sign in the aspen	Mixed aspen w/ dense shrub under
0201071	line 1		1		22		
0201071	line 2		1		23		
0201071	line 3		1		24		
0201071	line 4		1/2	25/1			
0201072	ObsPoint	Canon	2		2		ABLA/POTR w/ dense shrub under
0201073	general	Canon	2		3	"Lots of huckleberry"	Mixed conifer on rocky slope
0201073	line 1				4		
0201073	line 2				5		
0201073	line 3				6		
0201073	line 4				7		
0201074	general	Olympus	1		1		Alpine community
0201074	line 1				2		
0201074	line 2				3		
0201074	line 3				4		
0201074	line 4				5		
0201075	general	Olympus	1		6		Subalpine meadow
0201075	line 1				7		
0201075	line 2				8		
0201075	line 3				9		
0201075	line 4				10		
0201076	general	Olympus	1		11	No sign in picture	Talus slope with little veg.

0201077	general	Olympus 1	12		Herbaceous hillside
0201077	line 1		13		
0201077	line 2		14		
0201077	line 3		15		
0201077	line 4		16		
0201078	general	Olympus 1	17		
0201078	line 1		18	Dry meadow w/ distant conifer patches	
0201078	line 2		19		
0201078	line 3		20		
0201078	line 4		21		
0201079	general	Olympus 1	22		Herbaceous hillside
0201079	line 1		23		
0201079	line 2		24		
0201079	line 3	2	1		
0201079	line 4		2		
0201080	general	Olympus 2	3		PIEN, ABLA, PIAL tree clump
0201081	general	Olympus 2	4		
0201081	line 1		5		Valerie in meadow w/ distant peaks
0201081	line 2		6		meadow to trees
0201081	line 3		7		upslope to outcrop
0201081	line 4		8		meadow and Mt. Nord
0201082	general	Olympus 2	9		Meadow
0201082	line 1		10		
0201082	line 2		11		
0201082	line 3		12		
0201082	line 4		13		
0201083	general	Olympus 2	14	Looking down into Webb Canyon; No sign.	Alpine hillside
0201084	general	Olympus 2	15		PIEN and ABLA forested ridge
0201084	line 1		16		
0201084	line 2		17		
0201084	line 3		18		
0201084	line 4		19		
0201085	general	Canon 3	22 Y	Sally in plot	Populus angustifolia

0201085	line 1				18 Y		
0201085	line 2				19 Y		
0201085	line 3				20 Y		
0201085	line 4				21 Y		
0201086	general	Canon	4		2 Y	Sally among the chokecherries	POTR, POAN, Prunus
0201086	line 1		3		23 Y		
0201086	line 2				24 Y		
0201086	line 3				25 Y		
0201086	line 4	Canon	4		1 Y		
0201087	Zone 1				Y		Nuphar
0201087	Zone 2				2 Y		These are the pix #s that go with this plot, although they all may be general photos.
0201087	Zone 3				3 Y		
0201088	general	Canon	4		10 Y	Donna in plot	
0201088	line 1				6 Y		
0201088	line 2				7 Y		
0201088	line 3				8 Y		
0201088	line 4				9 Y		
0201089	general	Canon	4	15,16	Y	Donna holding sign in cottonwood stand w/ tall but sparse understory.	
0201089	line 1				11 Y		
0201089	line 2				12 Y		
0201089	line 3				13 Y		
0201089	line 4				14 Y		
0201090	general	Canon	4	17,22	Y		Salix vegetation
0201090	line 1				18 Y		
0201090	line 2				19 Y		
0201090	line 3				20 Y		
0201090	line 4				21 Y		
0201091	general				22 N		
0201092	general	Canon	5	2,3	y		PIPU w/ Equisetum arvense understory
0201092	line 1		4	23	Y		
0201092	line 2			24	Y		
0201092	line 3			25	Y		
0201092	line 4		5		1 N		

0201093	general	Canon	5		8	Carin holding sign in Shepherdia	
0201093	line 1				4 Y		
0201093	line 2				5 Y		
0201093	line 3				6 Y		
0201093	line 4				7 Y		
0201094	general	Canon	5		8 Y		Salix
0201094	line 1				9 Y		
0201094	line 2				10 Y		
0201094	line 3				11 Y		
0201094	line 4				12 Y		
0201095	general	Canon	5		16 Y		Detailed plot description
0201096	general	Canon	5		21 Y		Eleocharis
0201096	candid			22,23	Y	Scott and Klara	
0201096	line 1				17 Y		
0201096	line 2				18 Y		
0201096	line 3				19 Y		
0201096	line 4				20 Y		
0201097	general	Canon	6	3,4	Y	PIEN and Alnus	
0201097	line 1		5		24 Y		
0201097	line 2				25 Y		
0201097	line 3		6		1 Y		
0201097	line 4				2 Y		
0201098	general	Canon	6		N		POAN w/ ERIUMB
0201098	line 1				5 Y		
0201098	line 2				6 Y		
0201098	line 3				7 Y		
0201098	line 4				8 Y		
0201099	general	Canon	6	14,15	Y	Are these actually 13 and 14?	PICO w/ SHECAN
0201099	line 1				9 Y		
0201099	line 2				10 Y		
0201099	line 3				11 Y		
0201099	line 4				12 Y		
0202001	general	Dig camera		82, 80	Y		Sagebrush

0202001	line 1		86 Y		
0202001	line 2		85 Y		
0202001	line 3		84 Y		
0202001	line 4		83 Y		
0202002	general	Dig camera	79 Y	Along azimuth of first tape across sage w/ Blacktail Butte in bkgd	
0202002	line 1		78 Y		
0202002	line 2		76 Y		
0202002	line 3		74 Y		
0202002	line 4		72 Y		
0202003	general	Dig camera	67 Y	Brandt w/ Tetons in bkgd	
0202003	line 1		75 Y		
0202003	line 2		73 Y		
0202003	line 3		71 Y		
0202003	line 4		69 Y		
0202004	general	Dig camera	55 Y		Meadow w/ aspen patch
0202004	line 1		52 Y	Aspen in bkgd	
0202004	line 2		50 Y	PICO/aspen bkgd	
0202004	line 3		49 Y		
0202004	line 4		47 Y		
0202005	general	Dig camera	47 Y		ABLA, PSME forest
0202005	line 1		45 Y		
0202005	line 2		44 or 43 Y		
0202005	line 3		43 or 42 Y		
0202005	line 4		40 Y		
0202006	general	Dig camera	31 Y		PICO
0202006	line 1		38 Y		
0202006	line 2		35 Y		
0202006	line 3		34 Y		
0202006	line 4		31 Y		
0202007	general	Dig camera	20 Y	Lisa in meadow w/ Geranium & Potentilla	
0202007	line 1		27 Y		
0202007	line 2		25 Y		
0202007	line 3		24 Y		

0202007	line 4			2?	Y		
0202008	general				13 Y		
0202008	line 1				18 Y	Sign and rod in tree, downhill	
0202008	line 2				16 Y	On stump	
0202008	line 3				15 Y	Sign on ground, uphill	
0202008	line 4				14 Y	Brandt holding sign	
0202019	general	Pentax	4		10		Grazed sage
0202019	line 1				11		
0202019	line 2				12		
0202019	line 3				13		
0202019	line 4				14		
0202020	general	Pentax	4		15	Taken from fenceline bet. NPS land Ranch	Bromus inermis monoculture
0202021	general	Pentax	4	16,17			Salix/Carex complex
0202021	line 1				18		
0202021	line 2				19		
0202021	line 3				20		
0202021	line 4				21		
0202022	general	Pentax	4		22	Sign and rod in sage, PICO in bkgd	
0202022	line 1				23	Mt Moran in bkgd	
0202022	line 2				24	PICO in sage bkgd	
0202022	line 3				25	Bit of hwy thru PICO break in bkgd	
0202022	line 4				26	Sage w/ PICO/PSME distant bkgd	
0202023	general	Pentax	4		27		PICO stand
0202024	general	Pentax	4	28,29			Patchy PSME on steep slope
0202026	general	Pentax	4		30	Sign on ground in forb/aspen community	
0202026	line 1				31	Sage over valley/wetland	
0202026	line 2				32	Sign on downed aspen	
0202026	line 3				33	Sign and rod leaning on aspen	
0202026	line 4				34	Rod on aspen, sign on ground	
0202027	general	Pentax	4		35		Sagebrush
0202027	line 1				36		
0202027	line 2		5		1		
0202027	line 3				2		

0202027	line 4			3		
0202028	general	Pentax	5	4		Salix w/ some POTFRU & ARTTRI in openings
0202029	general	Pentax	5	5	Pix 6 is a bunk shot	PSME w/ PRUVIR
0202029	line 1			7		
0202029	line 2			8		
0202029	line 3			9		
0202029	line 4			10		
0202030	general	Pentax	5	11		PSME w/ sparse undergrowth
0202030	line 1			12	Sign on tree, downhill	
0202030	line 2			13	Sign on tree, crossslope	
0202030	line 3			14	Sign on ground, upslope	
0202030	line 4			15	Sign on tree, downslope	
0202031	general	Pentax	6	2		ABLA w/ patchy VACSCO
0202031	line 1			3		
0202031	line 2			4		
0202031	line 3			5		
0202031	line 4			6		
0202032	general	Pentax	6	7	Erica w/ board	Shrubby aspen & conifer patch at top of slope
0202033	general	Pentax	6	1		Grassland patch in PSME stand
0202034	general	Pentax	6	8	Shows contrast bet. BROTEC & Pseudoroegneria	
0202035	general	Pentax	6	9		ARTARB w/ BALSAG
0202035	line 1			10	Pix 11 is bunk	
0202035	line 2			12		
0202035	line 3			13		
0202035	line 4			14		
0202036	general	Pentax	6	15		Salix planifolia at edge of dry pond
0202036	line 1			16		
0202036	line 2			17		
0202036	line 3			18		
0202036	line 4			19		
0202037	general	Pentax	6	20		Mesic meadow surrounded by willows
0202038	general	Pentax	6	21	GJ holding sign and pole	Dry lake bed
0202039	general	Kodak	2	27	Inspiration point	Rocky cliff w/ little veg

0202040	general	Kodak	2	29	Where is Pix 28?; Board in tree	Mostly ABLA w/ some PIEN & PICO
0202040	line 1			30		
0202040	line 2			31		
0202040	line 3			32		
0202040	line 4			33		
0202041	general	Kodak	2	34	Lisa w/ board and pole	Bouldery ridge/ field. POTR, ABLA present
0202042	general	Kodak	2	35	Lisa sitting	PIEN/PSME mix
0202043	general	Kodak	2	36		Open area surrounded by PIEN/PSME forest.
0202044	general	Kodak	3	1 Y	Lisa in burned, bouldery hillside	
0202045	general	Kodak	3	2 Y	Valerie wearing special hair accessory w/ sign	
0202046	general	Kodak	3	3 Y	Erica showing buff arms	
0202047	general	Kodak	3	4 Y	Lisa among aspen	
0202048	general	Kodak	3	5 Y	Erica in aspen	
0202048	line 1			6 Y		
0202048	line 2			7 Y		
0202048	line 3			8 Y		
0202048	line 4			9 Y		
0202049	general	Kodak	3	10 Y	Erica holding board w/ Lisa in bkgd	ARTARB
0202049	line 1			11 Y		
0202049	line 2			12 Y		
0202049	line 3			13 Y		
0202049	line 4			14 Y		
0202050	general	Kodak	3	15 Y	Lisa holding sign	PICO stand w/ little undergrowth exopt seedlings
0202050	line 1			16 Y		
0202050	line 2			17 Y		
0202050	line 3			18 Y		
0202050	line 4			19 Y		
0202051	general	Kodak	3	20 Y	Lisa on log. Denser PICO w/few ABLA seedlings	
0202051	general	Kodak	3	21 Y	More downed wood than other pix and many ABLA seedlings	
0202052	general	Kodak	3	22 Y	Valerie cracking up w/ sign	PICO monoculture, lots of downed wood
0202053	general	Kodak	3	23 Y		PICO over w/ ABLA, PSME, PIEN in under.
0202053	line 1			24 Y		
0202053	line 2			25 Y		

0202053	line 3		26 Y		
0202053	line 4		27 Y		
0202054	general			Dead battery; no pix	
0202055	general			Dead battery; no pix	
0202055	line 1			Dead battery; no pix	
0202055	line 2			Dead battery; no pix	
0202055	line 3			Dead battery; no pix	
0202055	line 4			Dead battery; no pix	
0202056	general			Dead battery; no pix	
0202056	line 1			Dead battery; no pix	
0202056	line 2			Dead battery; no pix	
0202056	line 3			Dead battery; no pix	
0202056	line 4			Dead battery; no pix	
0202057	general			Dead battery; no pix	
0202057	line 1			Dead battery; no pix	
0202057	line 2			Dead battery; no pix	
0202057	line 3			Dead battery; no pix	
0202057	line 4			Dead battery; no pix	
0202058	general			Dead battery; no pix	
0202058	line 1			Dead battery; no pix	
0202058	line 2			Dead battery; no pix	
0202058	line 3			Dead battery; no pix	
0202058	line 4			Dead battery; no pix	
0202059 - 7/24/02	general			Dead battery; no pix	
0202059 - 7/24/02	line 1			Dead battery; no pix	
0202059 - 7/24/02	line 2			Dead battery; no pix	
0202059 - 7/24/02	line 3			Dead battery; no pix	
0202059 - 7/24/02	line 4			Dead battery; no pix	
0202129	general	Erica's	12		Alpine willow community
0202129	line 1	camera		No pix	
0202129	line 2			No pix	
0202129	line 3			No pix	
0202129	line 4			No pix	

0202060 - 7/25/02 general				Dead battery; no pix	
0202130 general	Kodak	6	3		PIAL w/ VACSCO
0202130 line 1			4		
0202130 line 2			5		
0202130 line 3			6		
0202130 line 4			7		
0202061 - 7/25/02 general				Dead battery; no pix	
0202061 - 7/25/02 line 1				Dead battery; no pix	
0202061 - 7/25/02 line 2				Dead battery; no pix	
0202061 - 7/25/02 line 3				Dead battery; no pix	
0202061 - 7/25/02 line 4				Dead battery; no pix	
0202131 general	Kodak	6	8,9,10		Willow/wet meadow community
0202131 line 1				Use general plot photos; Willows so dense	that line pix would not be useful.
0202131 line 2				No pix	
0202131 line 3				No pix	
0202131 line 4				No pix	
0202062 - 7/25/02 general				Dead battery; no pix	
0202062 - 7/25/02 line 1				Dead battery; no pix	
0202062 - 7/25/02 line 2				Dead battery; no pix	
0202062 - 7/25/02 line 3				Dead battery; no pix	
0202062 - 7/25/02 line 4				Dead battery; no pix	
0202132 general	Erica's				Alpine sedge community
0202132 line 1	camera			No pix	
0202132 line 2				No pix	
0202132 line 3				No pix	
0202132 line 4				No pix	
0202063 - 7/30/02 general	Kodak	4?	6 Y		PICO over w/some younger ABLA
0202063 - 7/30/02 line 1			2 Y	Pix 1 was test pix	
0202063 - 7/30/02 line 2			3 Y		
0202063 - 7/30/02 line 3			4 Y		
0202063 - 7/30/02 line 4			5 Y		
0202133 general				No pix taken	
0202064 - 7/30/02 general			Y	No pix	

0202064 - 7/30/02 line 1					No pix	
0202064 - 7/30/02 line 2					No pix	
0202064 - 7/30/02 line 3					No pix	
0202064 - 7/30/02 line 4					No pix	
0202134	general	Erica's		7	Pole against ABLA	
0202134	line 1	camera			No pix	
0202134	line 2				No pix	
0202134	line 3				No pix	
0202134	line 4				No pix	
0202065 - 7/30/02 general					No pix	
0202065 - 7/30/02 line 1					No pix	
0202065 - 7/30/02 line 2					No pix	
0202065 - 7/30/02 line 3					No pix	
0202065 - 7/30/02 line 4					No pix	
0202135	general	Erica's				ABLA/PIEN w/ Vaccinium under
0202135	line 1	camera			No pix	
0202135	line 2				No pix	
0202135	line 3				No pix	
0202135	line 4				No pix	
0202066 - 7/30/02 general					No pix taken	
0202136	general	Erica's				Very large Spruce w/ sparse understy
0202136	line 1	camera			No pix	
0202136	line 2				No pix	
0202136	line 3				No pix	
0202136	line 4				No pix	
0202067 - 7/30/02 general					No pix	
0202137	general	Canon	1	1		PIEN.ABLA/PSME/PICO & willow
0202137	line 1			2		
0202137	line 2			3		
0202137	line 3			4		
0202137	line 4			5		
0202068 - 7/31/02 general		Pentax	8	14,15	Y	POTR w/ AMEALN, PRUVIR
0202068 - 7/31/02 line 1				16	Y	

0202068 - 7/31/02 line 2				17 Y	
0202068 - 7/31/02 line 3				18 Y	
0202068 - 7/31/02 line 4				19 Y	
0202138	general	Canon	1	6	Open PSME stand w/ dense under
0202138	line 1			7	
0202138	line 2			8	
0202138	line 3			9	
0202138	line 4			10	
0202069	general	Pentax	8	20 Y	PSME w/ Spiraea betulifolia
0202069	line 1			21 Y	
0202069	line 2			22 Y	
0202069	line 3			23 Y	
0202069	line 4			24 Y	
0202070	general	Pentax	9	1 Y	ABLA, PSME, PICO w/ Ribes
0202070	line 1			2 Y	
0202070	line 2			3 Y	
0202070	line 3			4 Y	
0202070	line 4			5 Y	
0202071	general	Pentax	9	6 Y	POTR/PICO with SHECAN under
0202071	line 1			7 Y	Sign in spruce, aspen in bkgd
0202071	line 2			8 Y	
0202071	line 3			9 Y	Lean on aspen
0202071	line 4			10 Y	Aspen in bkgd
0202072	general	Pentax	9	11 Y	Mixed-conifer stand w/ Vac, Spiraea
0202072	line 1			12 Y	
0202072	line 2			13 Y	
0202072	line 3			14 Y	
0202072	line 4			15 Y	
0202073	general	Pentax	9	16 N	Alpine/krummholz
0202073	line 1			17 Y	
0202073	line 2			18 Y	
0202073	line 3			19 Y	
0202073	line 4			20 Y	

0202074	general	Pentax	9	21 Y	Alpine meadow.
0202074	line 1			22 Y	
0202074	line 2			23 Y	
0202074	line 3			24 Y	
0202074	line 4		10	1 Y	
0202075	general	Pentax	10	2 Y	ABLA/PIAL w/ sparse understory
0202075	line 1			3 Y	
0202075	line 2			4 Y	
0202075	line 3			5 Y	
0202075	line 4			6 Y	
0202076	general	Pentax	10	7 N	ABLA w/ Arnica, Carex under
0202076	line 1			8 Y	
0202076	line 2			9 Y	
0202076	line 3			10 Y	
0202076	line 4			11 Y	
0202077	general	Pentax	10	11? (12?) Y	PIAL/ABLA w/ sparse understory
0202077	line 1			12? (13?) Y	
0202077	line 2			13? (14?) Y	
0202077	line 3			14? (15?) Y	
0202077	line 4			15? (16?) Y	
0202078	general	Pentax	10	16 Y	ABLA/PIEN w/ dense herb understory
0202078	line 1			17 Y	
0202078	line 2			18 Y	
0202078	line 3			19 Y	
0202078	line 4			20 Y	
0202079	general	Pentax	10	21 Y	Subalpine meadow
0202079	line 1			22 Y	
0202079	line 2			23 Y	
0202079	line 3			24 Y	
0202079	line 4		11	1	
0202080	general	Pentax	11	2	Alpine meadow
0202080	line 1			3	
0202080	line 2			4	

0202080	line 3			5	
0202080	line 4			6	
0202081	general	Pentax	11	7	PIAL over, ABLA under w/ VASSCO
0202081	line 1			8	
0202081	line 2			9	
0202081	line 3			10	
0202081	line 4			11	
0202082	general	Pentax	11	12	PIEN/ABLA w/ heavy shrub under
0202083	general	Pentax	11	13	PICO regen from fire. EPIANG under.
0202083	line 1			14	
0202083	line 2			15	
0202083	line 3			16	
0202083	line 4			17	
0202084	general	Pentax	11	18	PICO regen from fire. EPIANG under.
0202084	line 1			19	
0202084	line 2			20	
0202084	line 3			21	
0202084	line 4			22	
0202085	general	Pentax	11	23	Salix
0202086	general	Pentax	11	24	Shrubby meadow
0202086	line 1		12	1 Y	
0202086	line 2			2 Y	
0202086	line 3			3 Y	
0202086	line 4			4 Y	
0202087	general	Pentax	12	5 Y	Post-fire PICO seeds
0202088	general	Pentax	12	6 Y	Carex meadow surrounded by Salix
0202089	general	Pentax	12	7 Y	Meadow w/ lots of Phleum
0202090	general	Pentax	12	8 Y	ABLA, PIEN, PSME, POTR saplings
0202091	general	Pentax	12	9 Y	PIEN/ABLA w/ Ribes under
0202091	line 1			10 Y	
0202091	line 2			11 Y	
0202091	line 3			12 Y	
0202091	line 4			13 Y	

0202092	general	Pentax	12	13 (14?)	Y		PIAL w/ ABLA, PIEN.
0202092	line 1			14 (15?)	Y		
0202092	line 2			15 (16?)	Y		
0202092	line 3			16 (17?)	Y		
0202092	line 4			17 (18?)	Y		
0202095	general	Canon	2	13,14		13: view within plot. 14: view from above	Salix
0202095	line 1			8		Pix 9 was a mistake	
0202095	line 2			10			
0202095	line 3			11			
0202095	line 4			12			
0202096	general					No pix; weed location only	
0202097	general	Canon	2	19?			Potentilla flor/A. cana ssp. viscidula
0202097	line 1			15			
0202097	line 2			16			
0202097	line 3			17			
0202097	line 4			18			
0202098	general	Canon	3	1	Y		A. cana ssp. viscidula
0202098	line 1		2	20		Pix 21, 22 were mistakes	
0202098	line 2			24			
0202098	line 3			25			
0202098	line 4			23			
0202099	general	Canon	3	2	Y		Carex/Phleum meadow
0202099	line 1			3	Y	Only one person doing this plot;	
0202099	line 2			4	Y	no one to hold board/rod	
0202099	line 3			5	Y		
0202099	line 4			6	Y		
0202100	general	Canon	3	7,8	Y		Sedge meadow
0202100	line 1			9	Y	Only one person doing this plot;	
0202100	line 2			10	Y	no one to hold board/rod	
0202100	line 3			11	Y		
0202100	line 4			12	Y		
0202101	general	Olympus	3	5			POAN/shrub complex
0202101	line 1			6			

0202101	line 2		7	
0202101	line 3		8	
0202101	line 4		9	
0202102	general	Olympus 3	10	POAN w/ SHECAN
0202102	line 1		11	
0202102	line 2		12	
0202102	line 3		13	
0202102	line 4		14	
0202103	general	Olympus 3	15	POAN on still-rocky glacial outwash
0202104	general	Olympus 3	16	Alnus incana w/ tall grasses
0202104	line 1		17	
0202104	line 2		18	
0202104	line 3		19	
0202104	line 4		20	
0202105	general	Olympus 3	21	Rhamnus alnifolia in meadow
0202105	line 1		22	
0202105	line 2		23	
0202105	line 3		24	
0202105	line 4	4	1	
0202106	general	Olympus 4	2	Salix w/ Betula
0202107	general	Olympus 4	3	Alninc, Rhaaln w/in meadow
0202107	line 1		4	
0202107	line 2		5	
0202107	line 3		6	
0202107	line 4		7	
0202108	general	Olympus 4	8	Nuphar
0202109	general	Olympus 4	10	PIPU w/ sparse understory
0202109	line 1		11	
0202109	line 2		12	
0202109	line 3		13	
0202109	line 4		14	
0202110	general	Olympus 4	15	Salix, Alnus incana, Carex utriculata
0202111	general	Olympus 4	16	POAN, PIPU

0202111	line 1		17	
0202111	line 2		18	
0202111	line 3		19	
0202111	line 4		20	
0202112	general	Olympus 4	21	POAN, PIPU, Alnus incana, SHECAN
0202113	general	Olympus 4	22	Salix, Alnus
0202114	general	Olympus 5	1	Salix/meadow complex w/Potentilla
0202114	line 1		2	
0202114	line 2		3	
0202114	line 3		4	
0202114	line 4		5	
0202115	general	Olympus 5	6	ABLA w/ moist forb under
0202115	line 1		7	
0202115	line 2		8	
0202115	line 3		9	
0202115	line 4		10	
0202116	general	Olympus 5	11	Grassy meadow
0202117	general	Olympus 5	12	Patchy PIAL, ABLA w/in meadow
0202118	general	Olympus 5	13	PIEN, PIAL, ABLA w/ low understy cover
0202118	line 1		14	
0202118	line 2		15	
0202118	line 3		16	
0202118	line 4		17	
0202119	general	Olympus 5	18	ABLA, PIAL, PIEN w/ VACSCO, ARNCOR
0202120	general	Olympus 5	19	Meadow on rocky slope
0202120	line 1		20	
0202120	line 2		21	
0202120	line 3		22	
0202120	line 4		23	
0202121	general	Olympus 5	24	Open ABLA, PIEN w/ high herb cover
0202121	line 1	6	1	
0202121	line 2		2	
0202121	line 3		3	

0202121	line 4			4		
0202122	general	Olympus 6		5		Open ABLA, PIEN w/ high herb cover.
0202123	general	Olympus 6		6		Betula, Salix
0202123	line 1			7		
0202123	line 2			8		
0202123	line 3			9		
0202123	line 4			10		
0202124	general	Olympus 6		11		Gravelly slope w/ABLA, PIEN
0202125	general	Olympus 6		12		Open PIAL, PICO forest w/ VACSCO
0202126	general	Olympus 6		13		Open PIAL, PICO forest w/ boulders
0202127	general	Olympus 6		14		Meadow w/ patchy PIAL, ABLA
0202128	general	Olympus 6		15		Patchy PIAL in meadow
Death Shelf 01	general	Pentax 13		21 Y	Scott in plot	Open meadow on scree shelf
Death Shelf 01	line 1			N	No pix; not enough film	
Death Shelf 01	line 2			N	No pix; not enough film	
Death Shelf 01	line 3			N	No pix; not enough film	
Death Shelf 01	line 4			N	No pix; not enough film	
Death Shelf 02	general	Pentax 13		22 Y	Sally in plot	Moist alpine community
Death Shelf 02	line 1			N	No pix; not enough film	
Death Shelf 02	line 2			N	No pix; not enough film	
Death Shelf 02	line 3			N	No pix; not enough film	
Death Shelf 02	line 4			N	No pix; not enough film	
Death Shelf 03	general	Pentax 13		23 Y	Scott in cushion plant community	Cushion plant community
Death Shelf 04	general	Pentax 13		24 Y	Sal in wet grassy section	
Death Shelf 05	general	Pentax 13		25 Y	Scott in plot looking toward Grand Teton	
02WY001	general	Canon 3		17 Y	Donna in plot	POTR/Symphoricarpos
02WY001	line 1			13 Y		
02WY001	line 2			14 Y		
02WY001	line 3			15 Y		
02WY001	line 4			16 Y		
0203001	general	Pentax 12		18 Y	Scott holding sign, "09/03/02 sedgeland."	
0203001	line 1			24 Y		
0203001	line 2			25 Y		

0203001	line 3				26 Y		
0203001	line 4				27 Y		
0203002	general	Pentax	12	19	Y	Scott holding sign reading, " 09/03/02 willows."	
0203002	line 1				20 Y		
0203002	line 2				21 Y		
0203002	line 3				22 Y		
0203002	line 4				23 Y		
0203003	general	Pentax	13		5 Y	Carin in plot	Salix
0203003	line 1				1 Y		
0203003	line 2				2 Y		
0203003	line 3				3 Y		
0203003	line 4				4 Y		
0203004	general	Pentax	13		6 Y		Eleocharis veg in depression
0203005	general	Pentax	13		7 Y	George in plot	POTR/ABLA/PICO w/sparse under
0203005	line 1				8 Y		
0203005	line 2				9 Y		
0203005	line 3				10 Y		
0203005	line 4				11 Y		
0203006	general	Pentax	13	10(?)	Y		POAN/PIPU w/ POAPRA under
0203006	line 1				11 Y		
0203006	line 2				12 Y		
0203006	line 3				13 Y		
0203006	line 4				14 Y		
0203007	general	Pentax	13		15 Y	Sally in plot	Open PIPU,POAN woodland
0203007	line 1				Y		
0203007	line 2				Y		
0203007	line 3				Y		
0203007	line 4				N		
G-01	general	Olympus 2			20		POAN, Amelanchier, Shepherdia
G-02	general	Olympus 2			1		POAN, SHECAN, JUNCOM
G-03	general	Olympus 2			22		POAN, PSME, SYMORE, Ame
G-04	general	Olympus 2			23		POAN, PSME, PIFL, ARTTRI
G-05	general	Olympus 2			24		POAN, PSME, SYMORE w/in ck bed

G-06	general	Olympus 3	1	Young POAN, PSME
G-07	general	Olympus 3	2	Young POAN, Salix
G-08	general	Olympus 3	3	POAN, MAHREP
G-09	general	Olympus 3	4	POAC

