Owyhee River below Pleasant Valley Table. The very dense upper canopy of Pacific willow had yellow willow and red-osier dogwood as common associates underneath, with lesser amounts of sandbar willow, Bebb's willow, and Wood's rose. This community occurs along a riparian corridor between the volcanic canyonsides. The stream channel is regularly scoured by flash floods or high spring run-off. As a consequence, the herbaceous understory is extremely depauperate, with only trace amounts of 10 grass and forb species. The substrate is alluvial deposits of sand, cobbles, and gravels. Pleasant Valley Table/North Fork Owyhee River was the highest elevation site sampled, ranging from 5400-5600 feet in elevation.

Occurrences of this community type have been recognized from southeastern (Jankovsky-Jones 1997c) and central (Jankovsky-Jones 1997a) Idaho. Further inventory and sampling in the mountainous areas of northwestern Owyhee County may reveal more drainages in which Pacific willow is dominant and elucidate the relationship of these stands to the Pacific willow and red-osier dogwood-willow sp. community types described from northern Nevada (Manning and Padgett 1995).

***Salix lasiolepis* cover type** - Arroyo willow is a "Great Basin species," which in Idaho is restricted to low elevations in the southwestern part of the state, where it is relatively common. Regionally, only Padgett *et al.* (1989; Utah) and Manning and Padgett (1995; Nevada) describe community types dominated arroyo willow. I encountered arroyo willow at six sites that nearly span the entire latitudinal gradient of this study (Appendix 4). At only three sites was a continuous cover type encountered, Hixon, Jump Creek, and Little Jacks Creek. Stands were sampled at each of these sites (Table 4), but this is not enough to clearly identify potential community types and each plot appears to be different from the two types described from Nevada. So, I created this general cover type class until we gain a better understanding of the variation in composition and structure of arroyo willow stands in Idaho and surrounding areas.

Ecologically, it is most often encountered along perennial streams (where I sampled it), but it can occur along ephemeral drainageways that are dry most of the growing season. Although floristically, each stand I sampled was different, they are all characterized by well-drained, coarse soils, impressively dense thickets of arroyo willow in near monocultures, and a depauperate understory.

Salix lutea - Similar to Pacific willow, yellow willow is commonly encountered in southwestern Idaho, but was rarely encountered as a cover type in my study sites. I sampled one small stand along Dry Creek at the Stewart Gulch site that fits reasonably well with Hall and Hansen's (1997) concept of a *Salix lutea* community type from eastern Idaho. It has also been documented from the Big Wood River basin (Jankovsky-Jones 1997a). The Dry Creek occurrence is in a narrow, V-shaped valley and has a diversity of shrub species present, but yellow willow is the clear dominant. There also is a diversity of graminoids and forbs present, most having low cover. More inventory and sampling is needed, but this community type appears to be rare in southwestern Idaho.

Crataegus douglasii/Rosa woodsii - This community type has been reported from Idaho Washington, and Oregon (Bourgeron and Engelking 1994), yet it has very little documentation. Daubenmire (1970) and Kovalchik (1987) are often cited as sources, but they offer little information on the composition and structure of stands. In Idaho, occurrences of the black hawthorn/Wood's rose community type have been documented from eastern (Jankovsky-Jones 1996; 1997c) and east-central Idaho. I encountered the black hawthorn cover type only at the Hixon HMP area, where it is common in the drainage bottoms of small tributaries to the larger creeks. The stands are only in shallow, open valleys, never in narrow, V-shaped ones. The stands are dense and numerous shrubs occur beneath the hawthorn canopy, including *Rosa woodsii, Salix lasiolepis, Prunus virginiana*, and *Symphoricarpos albus*. I have tentatively assigned the Hixon stands to this community type.

Black hawthorn is a common riparian cover type in the Cascade Resource Area. More sampling is needed to better describe the community variation in these stands.

***Juniperus scopulorum*/Mesic forb** - Rocky Mountain juniper is common in the riparian zone of the Bruneau and Jarbidge river canyons, where it often occurs as a single line of trees at the base of steep slopes at the river's edge. Occasionally, more extensive, albeit still pretty small, stands develop on alluvial terraces and gentle toeslopes adjacent of the rivers. I encountered this situation below Triplet Butte along the Bruneau River. Because these sites offer some of the gentlest ground and the only shade, cattle often use these stands as loafing areas. All the stands I encountered at Triplet Butte had highly disturbed and weedy understories, so no plots were sampled. Investigation of the less disturbed sites or portions of stands protected by rock barriers revealed that shrubs and grasses had low diversity and cover. Although most had a high component of exotics, indicators of a "mesic forb" association were often present, such as *Glycyrrhiza lepidota, Geranium viscosissimum,* and *Smilacina stellata*. More sampling and inventory are needed.

Philadelphus lewisii - Although widespread in the Pacific Northwest, syringa is rarely listed in the stand tables of regional riparian classifications (Table 1). I believe this is because it is most abundant at lower elevations in the region, below most existing classifications. It is prominent only in low elevation studies (*e.g.*, Miller 1976) or low elevation community types (*e.g.*, Crowe and Clausnitzer 1997). It is a common in riparian zones of five of my lower elevation study sites (Appendix 4), especially in the white alder stands of Hixon and Summer Creek, and water birch stands in Jump Creek.

At Jump Creek syringa is particularly abundant, and is codominant with red-osier dogwood along 0.5 mile of the narrow creek bottom. These two species are the only ones that have more than trace cover and in this respect, as well as hydrologic conditions, are similar to the *Cornus sericea* community type of higher elevations. Similar to the *Betula occidentalis/Philadelphus lewisii* community type, I expect this one to be found in other low-elevation canyons of the Owyhee Front area.

Carex sheldonii - This community type was encountered only at The Tules, where it occupies a zone between the *Scirpus acutus* community type and uplands. It is also the habitat of the rare species, *Teucrium canadense*. Sheldon's sedge has nearly complete cover in the stand, with a few *Salix exigua* and *Rosa woodsii* sprouts and relatively high diversity of forbs occurring in very low cover.

Crowe and Clausnitzer (1997) briefly describe a *Carex sheldonii* community type from the southern Blue Mountains in Oregon. In Idaho, the species occurs only in the southwestern part of the state from southern Hells Canyon (including Summer Creek, Appendix 4), south to at least The Tules. It has been documented from Andrus Wildlife Management Area in Hells Canyon, where it dominates small patches in the riparian zone of one drainage (Mancuso and Moseley 1995; and personal communication, CDC, 1997). I expect to encounter this community type elsewhere in Hells Canyon and Owyhee County.

Scirpus pallidus - Pale bulrush occurs infrequently in southwestern Idaho along spring creeks and subirrigated wetlands (Appendix 4). It was observed as a cover type only at Hixon, where this tall bulrush totally dominated a small subirrigated slope in the Sage Creek drainage. *Glyceria elata, Juncus tenuis, Agrostis stolonifera, Carex subfusca*, and *Epilobium ciliatum* were the only associates, all with trace cover. This distinctive bulrush is widespread at low elevations in the west and it's conceivable that other occurrences of this tentative community type will be documented with more inventory.

***Artemisia cana*/Dry graminoid** - Manning and Padgett (1995) first described the *Artemisia cana*/Dry graminoid community type from Nevada, including sites from near the Idaho border. I found a stand on an alluvial terrace adjacent to an ephemeral drainage on Pleasant Valley Table that more or less fits their type. Silver sagebrush is virtually the only shrub present and the understory has a high cover of perennial graminoids such as *Carex douglasii, Festuca idahoensis, Poa nevadensis, Agropyron smithii, Juncus confusus*, and *J. tenuis*. Forb diversity is also high, but I sampled this stand in early September and most the forbs had completely dried, so they appeared in low cover. The substrate was a fine-textured alluvium. More samples are needed to determine the relationship of our stands to the *Artemisia cana/Festuca idahoensis* type (Tuhy 1981; Youngblood *et al.* 1985; Hansen *et al.* 1995). In southwestern Idaho, this community is most likely to be encountered on the Owyhee Plateau.

Artemisia cana/Muhlenbergia richardsonis - This is a vernal pool community, first recognized as a habitat type by Hironaka *et al.* (1983) from internally-drained basins on the Snake River Plains northeast of Bliss. They also mention that it occurs in eastern Oregon. Unfortunately, they give no composition and structure data except to say that *Juncus balticus* and *Poa nevadensis* are present in some occurrences. My discovery of an occurrence at a vernal lake bed, dubbed YP Lake Bed, from the Owyhee Plateau south of the Owyhee River canyon, appears to be the first from outside the Bliss area.

At YP Lake Bed, this community type occupies the higher positions of the vernal lake, probably resulting in less frequent and shorter inundation. The lower portion of the site is occupied by the *Eleocharis palustris* vernal pool community type (see below). Species diversity and plant cover are low at this occurrence. More sampling is needed to fully characterize this type and stands are most likely to be found around the vernal lake beds west of Duck Valley.

Artemisia ludoviciana - In the ephemeral, rocky bed of the Little Owyhee River, near the 45 Ranch, is a distinctive community in which Louisiana sagebrush is the dominant in a community with a high diversity of graminoids and forbs. Although most have low cover, my plot had nine grasses and grass-like species and 10 forbs, with *Muhlenbergia richardsonis* and *Eleocharis palustris* being the most abundant. Large rocks, with sand and gravel in between, comprise most of the ground cover. This community type is habitat for the rare species, *Haplopappus uniflorus* var. *howellii*.

First described by Lichthardt (1992) from large gravel bars along the Clearwater River in northern Idaho, this community type has also been recorded from vernal pools in eastern Idaho (Jankovsky-Jones 1996). All three occurrences in Idaho have well-drained, ephemerally-wet, coarse-textured substrates, although floristically they differ considerably. At the moment, *Artemisia ludoviciana* type is a general cover type class that is useful for cataloging riparian community diversity in the state. Further sampling may divide important biotic and ecologic patterns within this class into separate community types.

***Artemisia papposa* ephemeral wetland** and ***Danthonia californica* ephemeral wetland** - Along with the *Artemisia cana*/Dry graminoid community type, these two community types also occur along wide, low-gradient, ephemeral drainageways on Pleasant Valley Table. A low shrubland, dominated by Owyhee sagebrush, occurs adjacent to the main channels. *Lomatium leptocarpum* and *Poa secunda* are the two most prominent associates, but most of the cover is soil and gravel. The *Danthonia californica* ephemeral wetland community type occurs in the ephemeral channel, having 25-50% cover, with *Eleocharis bolanderi, Camassia quamash, Lomatium leptocarpum*, and the rare species, *Haplopappus uniflorus* var. *howellii*, being common associates. The soil is shallow and gravelly.

Although only sampled at Pleasant Valley Table, I have observed the California oatgrass type to be common in ephemeral drainages on the Owyhee Plateau. Owyhee sagebrush is largely endemic to Idaho, although rare occurrences of it are known from adjacent Oregon and Nevada. More sampling is needed, but the *Artemisia papposa* ephemeral wetland community type has the potential to occur on the Owyhee Plateau and in the middle Big Wood River basin of south-central Idaho.

***Eleocharis palustris* vernal pool** - Common spike-rush is widespread and occurs in wide range of moisture and hydrologic gradients, from perennially wet stream courses and wetlands to vernal pools that dry to concrete hardness late in the season. Acknowledging the diversity of ecological conditions represented by these gradients, I have decided to recognize a community type that

encompasses one extreme, that is the vernal pools and lakes. In Idaho, *Eleocharis palustris* vernal pool community type has been observed on the two big volcanic plains in the state, the Snake River Plain and Owyhee Plateau.

I sampled a large occurrence of this at the YP Lake Bed. *Eleocharis palustris* and *Iva axillaris* are the two dominant species on the site, with *Oenothera tanacetifolia* and *Muhlenbergia richardsonis* being the only other species present. More sampling is needed to better describe the community variation in Idaho.

The following soils information was provided by Helen Fisher (1997), which also applies to the *Artemisia cana/Muhlenbergia richardsonis* community described above. The lake probably has soils of the Babbington-Piline association, 0 to 3 percent slopes.

Babbington-Piline association, 0 to 3 percent slopes.

Babbington silt loam - 50 percent
Piline silty clay loam - 40 percent
Buncelvoir - 10 percent or less

Soils Description: made in the middle in *Eleocharis palustris* community

0 to 12 cm; light gray (10YR7/2) silty clay, grayish brown (10YR5/2) moist; moderate structure, medium angular blocky; hard when dry.
12+ cm; dark gray (10YR4/3) clay, dark brown (10YR3/3) moist; moderate structure, fine angular blocky; hard when dry.

***Lepidium davisii* vernal pool** - Another vernal pool community found on the volcanic plains of the Owyhee Plateau and Snake River Plain is dominated by Davis' peppergrass. This species is restricted to vernal pools, often called playas, of southwestern Idaho and adjacent portions of Nevada and Oregon. It is often the only species occurring in the pools, however, there can be a number of other species that inhabit at least portions of the site (Moseley 1995). I sampled a vernal pool on Halogeton Flat, above the 45 Ranch, and the only other associates were *Atriplex confertifolia* and a species of *Cymopterus* that I keyed out to *C. longipes* var. *ibapensis* (the plants were completely senesced, but geography, vegetative, and fruit characteristics confidently brought me to this species in the flora). This community type is characterized by the large areas of exposed soil, with all species occurring in low cover. Davis' peppergrass is the most abundant at 3-5% cover. Peppergrass pools have been mapped in the Owyhee County soil survey as a unit, the Playas-Duric Natrargids association (Fisher 1997). This rare community type is widely scattered across southern Idaho.