
**BIOLOGICAL ASSESSMENT
WITH BOTANICAL SURVEY**
for
LITTLE RIVER AIRPORT PROJECT

September 2, 2004

**Prepared by
Northwest Biosurvey
for
County of Mendocino
Department of Transportation**



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September 2, 2004

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1.0 PROJECT DESCRIPTION

1.1 Proposed Project: This survey covers proposed maintenance at the Little River Airport located near the town of Little River in Mendocino County, California. The County of Mendocino Department of Transportation is requesting a survey of biological resources within the 273-acre airport property and adjacent approaches.

The initial phase of this assessment will evaluate the potential of the parcel to contain sensitive plant and wildlife habitat. The second phase will consist of a floristic-level botanical survey listing all plant taxa¹, on the property. The assessment will determine whether the property contains sensitive plants, or potentially contains sensitive wildlife requiring mitigation under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals and Natural Communities".

1.2 Location: The property is located on Airport Road approximately one mile east of the community of Little River, Township 16 North, Range 17 West, Sections 9 and 10 (Mendocino and Mathison Peak, Calif. 7½' Topographic Maps.) A location map is provided in **Figure 1**.

2.0 ASSESSMENT METHODOLOGY

The basis of the biological assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of sensitive species potentially present. The analysis includes the following site characteristics:

- location of the project area with regard to the geographic range of sensitive plant and wildlife species,
- location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDB),
- soils of the project area,
- elevation,
- presence or absence of special habitat features such as vernal pools and serpentine soils,
- plant communities existing within the project area.

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (version 1.5.1; 2004 edition),

¹ Many sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term "taxa" refers to species and their sub-specific categories.

123°48.000' W

123°47.000' W

123°46.000' W

WGS84 123°45.000' W

LITTLE RIVER AIRPORT LOCATION MAP

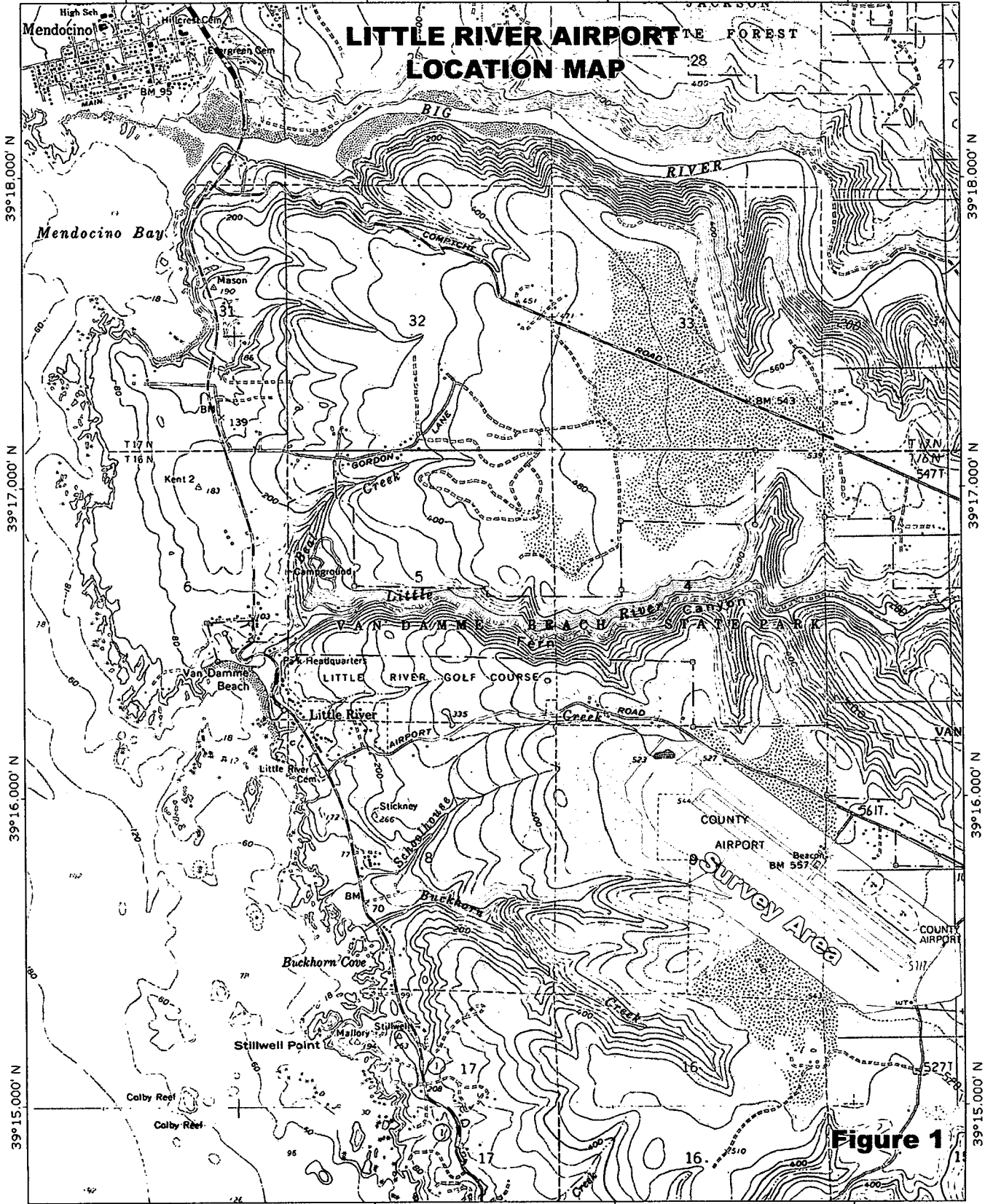


Figure 1

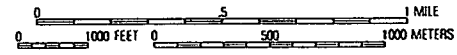
123°48.000' W

123°47.000' W

123°46.000' W

WGS84 123°45.000' W

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- California Department of Fish and Game, *California Wildlife Habitat Relationships System* (WHR) Version 8.0,
- California Department of Fish and Game, *California Natural Diversity Database* (CNDDDB), 2004.

The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

The WHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

The CNDDDB database consists of mapped overlays of all known populations of sensitive plants and wildlife. The database is continually updated with new sensitive species population data.

2.1 Botanical Survey Methods: A full, in-season floristic-level survey was conducted for the project site. The CNDDDB reports and overlay maps for the Mendocino and Mathison Peak quads were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995) as modified by the California Native Plant Society (CNPS), and mapped on a 1"=400' aerial photo. Plant community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*. Where necessary, species names were updated based on the 6th edition, *CNPS Inventory of Rare and Endangered Plants of California*. A map of the plant communities is provided in **Figure 2**, the large-scale folded map at the end of this report.

2.2 Survey Dates: Site visits for in-season floristic surveys and plant community mapping were made on April 25, May 1-2, and August 20, 2004.

2.3 Biological Assessment Staff: The botanical field survey and plant taxonomy were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has 28 years of experience as a biologist in the government and private sectors.

Field surveys, final report preparation and database review were conducted with the assistance of Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has a Bachelor of Arts Degree and has completed all course work toward an M.A. Degree in rural planning from Chico State University. Prior to joining Northwest Biosurvey, Ms. Zalusky served 15 years as a planner in local government and completed her government service as a senior planner for the Lake County Community Development Department.

3.0 SITE CHARACTERISTICS

3.1 Topography and Drainage: The airport property is located approximately 1.25 miles inland from the coast at an elevation of 540 feet msl. The airport and surrounding terrain are on level marine terrace deposits. West of the runway, this topography progressively steepens as elevations drop to sea level along the coast.

The level, poorly drained soils of the airport property are unique to this region of the North Coast, and have given rise to the pygmy cypress forest habitat surrounding the airport and on other similar terrace deposits in the area. Drainage channels have been excavated along both sides of the northwest-to-southeast trending runway in order to improve drainage. The channel along the northeast side of the runway drains northwest to a series of wetlands and ponds which form the headwaters of Schoolhouse Creek. Drainage along the southwest side of the runway flows to Buckhorn Creek. Both creeks enter the sea north of Buckhorn Cove, 1.25 miles to the west of the airport property.

3.2 Soils: The parcel contains six soil units, described as follows. All soils are on marine terraces and formed in marine sediments. Each soil is depicted by soil number on the aerial photo base map provided in **Figure 2**.

- **Urban land (Soil #219):** The airstrip and the developed and cleared areas around it are within this soil class. Slopes range from 0-15 percent. Typically, approximately 50% of the area in this soil class is covered by impervious surfaces like asphalt or concrete, and 25 percent is altered by cutting, filling and grading. Characteristics vary depending on the specific location of the unit.
- **Shinglemill-Gibney complex, 2-9% slopes (Soil #199):** This unit is around the perimeter of the developed runway on the northwest end and on the south side. It is composed of 45% Shinglemill loam and 35% Gibney loam. Vegetation is mostly bishop pine and huckleberry. Both soils are very deep and poorly drained. Permeability is slow, runoff is slow or medium, and the hazard of erosion is slight or moderate.
- **Blacklock and Aborigine soils, 0-5% slopes (Soil #108):** This unit is mostly at the southeast end of the runaway. Vegetation on this unit is mainly stunted Mendocino "pygmy" cypress as well as Bolander's beach pine. The Shinglemill soil is shallow to a hardpan and very poorly drained. The surface is a ½" mat of litter above gray loamy sand. Hardpan is at a depth of 12 to 20 inches. Permeability is slow and water capacity is low. The Aborigine soil is very deep and very poorly drained. The surface is a 3" thick litter above light gray and white sandy loam. Permeability is very slow and effective rooting depth is limited by seasonal saturation, the saturation zone starting at 12" below the surface. Runoff is very slow and the hazard of erosion is slight for both soils.
- **Tropaquepts, 0-15% slopes (Soil #214):** This unit occurs in a strip along the north side of the runway, with a small area southeast of the airstrip. These are very deep, poorly drained soils on marine terraces at the heads of drainageways, along drainageways, or in shallow depressions. The soils consist of clay loam, with sand at 63 inches below the surface.

Some areas support dense stands of Mendocino cypress and Labrador tea; others support mainly perennial grasses, sedges, and wax myrtle. Permeability is extremely variable. The soils are continuously saturated from December through April, which affects rooting depth. Water may pond on the surface. The hazard of water erosion is slight or moderate. The road crossing contains these soils.

- **Quinliven-Ferncreek complex, 2-15% slopes (Soil #196); Ferncreek sandy loam, 2-9% slopes (Soil #141):** These soils are found in patches at the south side of the airstrip. The first soil unit is comprised of 60% Quinliven and 25% Ferncreek loams. Both soils consist of sandy loam above clay. Vegetation on this unit is mainly redwood, Douglas fir, bishop pine, and tan oak. The Quinliven soil is very deep and moderately well drained. Rooting depth is limited due to periodic saturation between 48” and 72” below the surface. Permeability is slow and runoff is slow or moderate, and the hazard of erosion is slight to moderate. The Ferncreek soil is very deep and somewhat poorly drained. It is also saturated at 48”-78” for periods of the year. Permeability, runoff and erosion hazard are similar to those for the Quinliven soil.

Characteristics of the Ferncreek sandy loam are as described in the Quinliven-Ferncreek complex.

3.3 Plant Communities: The site contains four plant communities based on the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation*² (hereafter referred to as the "vegetation manual"). The plant communities are listed in **Table 1** along with other substrates within the airport property. They are described below and shown in the plant communities map provided in **Figure 2**. As noted in Figure 2, the actual area of mapped plant communities was expanded (400 feet) beyond the biological assessment survey area in order to provide visual context with the plant communities surrounding the airport property.

TABLE 1. TOTAL AREA OF PLANT COMMUNITIES AND SUBSTRATES

| Plant Community/Feature | Acreage | Percent of Parcel |
|------------------------------------|----------------|--------------------------|
| Pygmy Cypress Forest | 59.24 | 21.72 |
| Bishop Pine Forest | 51.09 | 18.73 |
| Sedge Series (Wetlands, drainages) | 5.99 | 2.20 |
| Pond Lily Series (Ponds) | 0.35 | 0.13 |
| Periodically Cleared Forest | 59.50 | 21.81 |
| Regularly Maintained Cleared Areas | 96.60 | 35.41 |
| Total | 272.77 | 100.00 |

² Sawyer and Keeler-Wolf 1995 as updated.

It should be noted before describing them in detail that the two dominant plant communities, Pygmy Cypress Forest and Bishop Pine Forest, differ little from one another with respect to the assemblage of species present within them. The primary difference between these two communities is in structure. Thin, poorly-drained soils result in the stunted growth of the pygmy forest. Where the forest occurs on better soils, it develops the more normal height and structure of the Bishop pine forest. There are shifts in species abundance and minor additions or subtractions in the list of species present, but overall, the similarities between these two communities are far greater than the differences. A consequence of this interesting ecology is that there is much subjectivity in determining where one community ends and another begins. Also, each community contains small inclusions of the other that occupy too small an area to warrant mapping.

- **Pygmy Cypress Forest:** As the series name implies, this stunted forest is dominated by pygmy cypress (*Cupressus goveniana* ssp. *pigmaea*), which vary in height from 6 to 20 feet on the most sterile soils. Bolander's pine (*Pinus contorta* ssp. *bolanderi*) and Bishop pine (*Pinus muricata*) are codominant members of the upper canopy. The shrub layer is dominated by two "dwarf" shrubs: pygmy manzanita (*Arctostaphylos mendocinensis*) and Mendocino manzanita (*A. nummularia*). A third "pygmy" shrub species, Vine Hill ceanothus (*Ceanothus foliosus* var. *vineatus*) is also present. Other members of the shrub community include California huckleberry (*Vaccinium ovatum*), Labrador tea (*Ledum glandulosum*), and salal (*Gaultheria shallon*). The herb layer includes a mix of forbs and grasses, or in some locations by a homogenous layer of coastal reindeer moss (*Cladina portentosa* ssp. *pacifica*). Included in the herb layer are Bolander's reed grass (*Calamagrostis bolanderi*), round-leaved sundew (*Drosera rotundifolia*), and common velvet grass (*Holcus lanatus*).
- **Bishop Pine Forest:** As discussed, the species assemblage in this community closely resembles that of the pygmy cypress forest. Trees here, including pygmy cypress, grow to greater height, providing an upper canopy 70 feet tall or greater. Bishop pine is more prevalent in this community, but large pygmy cypress is co-dominant and Bolander's pine is present. Added to this community are Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and coast redwood (*Sequoia sempervirens*), both of which contribute to the upper canopy. Pacific madrone (*Arbutus menziesii*) and tanoak (*Lithocarpus densiflorus* var. *densiflorus*) provide a subcanopy.

In addition to the shrubs found in the pygmy cypress forest, hairy manzanita (*Arctostaphylos columbiana*), chaparral broom (*Baccharis pilularis*), and Scotch broom (*Cytisus scoparius*) are common members of this community. The herb community resembles that of the pygmy forest but with the addition of several common annual grasses and forbs listed in the botanical survey results presented in **Table 5**.

- **Sedge Series:** This remarkably diverse community occupies the drainage ditches along the sides of the runway and the edges of the three ponds at the northwest end of the property. A total of five species of sedge (family Cyperaceae), two reeds (family Typhaceae), and a rush (family Juncaceae) were identified within the survey area. These species are listed in the botanical survey results provided in Table 5. The large number of species occupying

these sites indicates a habitat diversity that is not readily apparent in the excavated drainages and ponds that occur on the property.

- **Pond Lily Series:** This homogenous community occupies the deeper water of the three ponds at the northwest end of the property. Sedge series occupies the shallow areas and open water occurs where it is too deep for rooted, floating vegetation to grow.

The following two categories are not natural plant communities but have been added to describe the assemblage of plants and community structure of the cleared areas adjacent to the airport:

- **Periodically Cleared Forest:** These periodically cleared areas (shown in Figure 2), are dominated by a nearly continuous coverage of the herbs, grasses and low shrubs of the adjacent forest communities. Due to the removal of the tree canopy, this shrub layer has proliferated to a nearly continuous mat made up primarily of “pygmy” shrubs. These consist of pygmy manzanita, Mendocino manzanita, and Vine Hill ceanothus. Clumps of Pampas grass (*Cortaderia selloana*) and Scotch broom are dispersed throughout these areas.

Vine Hill ceanothus is particularly prevalent along the cleared strip west of the hangars on the northwest edge of the runway. Bolander’s reed grass is most prevalent in the cleared runway approach at the southeast end of the runway. Pygmy cypress seedlings occur throughout these communities along with seedlings of Bishop and Bolander’s pine. While it is assumed that this community would develop into the adjacent forest type (either pygmy cypress forest, or Bishop pine forest) these trends are not yet apparent in this altered habitat.

- **Regularly Maintained Cleared Areas:** These consist of the paved or cleared areas of the active air field, taxiways, roads, and immediately adjacent ground of the airport. This area appears to be maintained on an annual basis and lacks all but a thin herb layer consisting primarily of introduced grasses and forbs.

4.0 PRE-SURVEY RESEARCH RESULTS

4.1 CNPS Electronic Inventory Analysis: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status and all non-status plants on CNPS List 1B or List 4. The query included all plants within this region of the county occurring within the plant communities identified on the project site on sandy loam and podzol soils. The results are as shown in **Table 2**.

TABLE 2.

**California Native Plant Society's
Inventory of Rare and Endangered Vascular Plants of California
Selected CNPS Plants:
Little River Airport**

| <u>Scientific/Common Name</u> | <u>CNPS</u> | <u>R-E-D</u> | <u>State</u> | <u>Federal</u> |
|--|-------------|--------------|--------------|----------------|
| <i>ARCTOSTAPHYLOS MENDOCINOENSIS</i> "pygmy manzanita" | 1B | 3-2-3 | None | None |
| <i>CALAMAGROSTIS BOLANDERI</i> "Bolander's reed grass" | 4 | 2-2-3 | None | None |
| <i>CALAMAGROSTIS CRASSIGLUMIS</i> "Thurber's reed grass" | 2 | 3-3-1 | None | None |
| <i>CAMPANULA CALIFORNICA</i> "swamp harebell" | 1B | 2-2-3 | None | None |
| <i>CUPRESSUS GOVENIANA</i> SSP. <i>PIGMAEA</i> "pygmy cypress" | 1B | 2-2-3 | None | None |
| <i>JUNCUS SUPINIFORMIS</i> "hair-leaved rush" | 2 | 2-2-2 | None | None |
| <i>LILIUM MARITIMUM</i> "coast lily" | 1B | 2-3-3 | None | None |
| <i>PINUS CONTORTA</i> SSP. <i>BOLANDERI</i> "Bolander's beach pine" | 1B | 2-2-3 | None | None |
| <i>RHYNCHOSPORA ALBA</i> "white beaked-rush" | 2 | 2-2-1 | None | None |

4.2 California Natural Diversity Database: The California Natural Diversity Database (CNDDDB) overlays for the Mendocino and Mathison Peak 7½' quadrangle maps were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur within these quadrangles. In addition to listing the species present within the quadrangles, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. The table lists 28 sensitive plant species, 7 wildlife species, and 6 sensitive habitat types.

| <u>Plant Species</u> | <u>Common Name</u> | <u>Habitat Requirements</u> | <u>Blooming Season</u> | <u>Habitat Present</u> |
|---|-----------------------------|--|------------------------|------------------------|
| <i>Cupressus goveniana ssp. pigmaea</i> | pygmy cypress | Closed-cone conif. forest, chaparral (maritime) | Ever. tree | Yes |
| <i>Erigeron supplex</i> | supple daisy | Coastal bluff scrub, coastal prairie | Per. herb: May-July | Yes |
| <i>Erythronium revolutum</i> | coast fawn lily | Bogs & fens, broadleaved upland forest, North Coast conif. forest; mesic, streambanks | Per. herb: March-June | Yes |
| <i>Gilia capitata ssp. pacifica</i> | Pacific gilia | Coastal bluff scrub, coastal prairie | Ann. herb: May-Aug. | No |
| <i>Gilia millefoliata</i> | dark-eyed gilia | Coastal dunes | Ann. herb: Apr.-July | No |
| <i>Lasthenia macrantha ssp. bakeri</i> | Baker's goldfields | Closed-cone conif. forest (openings), coastal scrub | Per. herb: Apr.-Oct. | Yes |
| <i>Lilium maritimum</i> | coast lily | Broadleaved upland forest, closed-cone conif. forest, coastal prairie, coastal scrub, marshes & swamps (freshwater), North Coast conif. forest | Per. herb: May-July | Yes |
| <i>Lycopodium clavatum</i> | running-pine | Marshes & swamps, North Coast conif. forest (mesic) | Per. herb: July-Aug. | Yes |
| <i>Microseris borealis</i> | northern microseris | Bogs & fens, lower montane conif. forest, meadows & seeps; mesic | Per. herb: June-Sept. | Yes |
| <i>Mitella caulescens</i> | leafy-stemmed mitrewort | Broadleaved upland forest, lower montane conif. forest, meadows and seeps, North Coast conif. forest; mesic | Per. herb: May-July | Yes |
| <i>Pinus contorta ssp. bolanderi</i> | Bolander's beach pine | Closed-cone conif. forest (podzol-like soil) | Ever. tree | Yes |
| <i>Pleuropogon hooverianus</i> | North Coast semaphore grass | Broadleaved upland forest, meadows & seeps, marshes & swamps (freshwater), North Coast conif. forest, vernal pools; mesic | Per. herb: May-Aug. | Yes |
| <i>Sanguisorba officinalis</i> | great burnet | Bogs & fens, broadleaved upland forest, meadows & seeps, marshes & swamps, North Coast conif. forest, riparian scrub; often serpentine | Per. herb: July-Oct. | No |
| <i>Senecio bolanderi var. bolanderi</i> | seacoast ragwort | Coastal scrub, North Coast conif. forest | Per. herb: June-July | Yes |
| <i>Sidalcea malachroides</i> | maple-leaved checkerbloom | Broadleaved upland forest, coastal prairie, coastal scrub, North Coast conif. forest; often in disturbed areas | Per. herb: April-Aug. | Yes |
| <i>Usnea longissima</i> | long-beard lichen | On conifers in North Coast forest | NA | Yes |

| <u>Wildlife Species</u> | Common Name | Habitat Requirements | Season Present | Habitat Present |
|------------------------------------|-----------------------------|--|-----------------------|------------------------|
| <i>Arborimus pomo</i> | red tree vole | North Coast fog belt from Oregon border to Sonoma Co. In Douglas fir, redwood & montane hardwood-conifer forests | year-round | No |
| <i>Ascaphus truei</i> | western tailed frog | Riparian/aquatic | year-round | No |
| <i>Fratercula cirrhata</i> | tufted puffin | Coastal areas | year-round | No |
| <i>Lycæides argyrognomon lotis</i> | lotis blue butterfly | Sphagnum bog near bishop pine forest | year-round | No |
| <i>Pendion haliaetus</i> | osprey | Large, fish-bearing waters usually in mixed conifer habitats | year-round | Yes |
| <i>Rana aurora draytonii</i> | California red-legged frog | Generally slow or ponded water | year-round | Yes |
| <i>Rhyacotriton variegatus</i> | southern torrent salamander | Coastal redwood, Douglas fir, mixed conifer, montane riparian, montane hardwood-conifer; old growth forest | year-round | No |

4.3 Sensitive Wildlife Habitat Analysis Results:

The Wildlife Habitat Relations analysis lists four species as potentially occurring on the site based on the geographic location and wildlife habitats present. The WHR results are listed below in **Table 4**.

TABLE 4. WILDLIFE SPECIES IDENTIFIED BY THE WHR DATABASE

| Species | Common Name | Habitat | Status |
|---------------------------|--------------------|---|---------------------------------|
| <i>Elanus leucurus</i> | white-tailed kite | Open fields near trees with dense canopies for cover | Fully Protected (while nesting) |
| <i>Accipiter striatus</i> | sharp-shinned hawk | Cool, moist, well-shaded conifer forest | CSC* (nesting) |
| <i>Falco columbarius</i> | merlin | Coastlines, open grasslands, woodlands, lakes and wetlands, edges | CSC (nesting) |
| <i>Progne subis</i> | purple martin | Open woodland near water | CSC (nesting) |

* California Species of Concern

Based on the presurvey research conducted for this study, a total of 12 wildlife species need to be accounted for within the project area. These consist of the four species selected by the WHR analysis listed in Table 4, and seven species identified as present within the Mendocino and Mathison Peak quadrangles by the CNDDDB and listed in Table 3. Northwestern pond turtles have also been added due to the presence of suitable habitat. Accepted protocol requires that all CNDDDB species be discussed even through suitable habitat may not occur here.

- Lotus blue butterfly:** This butterfly is a Federal Endangered Species; it has no state sensitive status. It is known only from sphagnum bog – a rare coastal bog habitat – and wet meadow habitats. The host plant of the butterfly larvae is believed to be seaside bird's-foot trefoil (*Lotus formosissimus*), which declined in population due to drought in the late 1970's. The butterfly's last known location was a sphagnum bog surrounded by closed pine forest containing mainly bishop pine. It was last observed in 1984 in a sphagnum bog northwest of the airport, approximately one mile south of the town of Caspar. A survey at the site in 1994 did not find the butterfly.

There are two identified sphagnum bogs south of the airport: one southwest of the site at the headwaters of Smith Creek, and the other south of the Albion River. The species is apparently completely dependent on sphagnum bog habitat which is lacking within the survey area. Consequently, it is unlikely that these butterflies are present.

- California red-legged frog:** The CNDDDB indicates that a population of these frogs is present in the South Fork of the Noyo River, approximately 10 miles to the northeast of this site. This is primarily a frog of ponds or slow-moving water with sufficient depth and bank vegetation to provide cover. The three ponds at the northwest corner of the property provide potential habitat for the species. A survey for red-legged frogs was beyond the scope of this study.

- **Western tailed frog:** These frogs are found in mature stands of redwood, Douglas fir, and ponderosa pine habitats. The adults forage along streambanks and occasionally underwater. Adult frogs seek cover under rocks and logs in streams. This species is restricted to cool perennial streams. The closest CNDDDB occurrence is less than two miles south of the airport in Dark Gulch. The ponded water and drainage ditches on the airport site, however, would be too warm to support this species.
- **Southern torrent salamander:** This salamander occurs in redwood and Douglas fir forest in cold, well-shaded perennial streams among rocks and pebbles or along the stream splash zone and in quiet seeps. The CNDDDB lists accounts of this species in Little River 0.5 miles north of the airport. However, the open pond and slow moving drainages on the airport property lack the cool, shaded, headwater habitats preferred by this species.
- **Northwestern pond turtle:** While there are no accounts of this species within the surrounding quadrangles, these turtles do occur in suitable habitat along streams of the Mendocino Coast. These turtles prefer ponded water and slow moving streams with sufficient water depth to avoid predators. They will, however, travel widely within drainage systems in search of suitable habitat. The ponds at the northwest end of the property provide excellent potential habitat for northwestern pond turtles.
- **Tufted puffin:** These seabirds occupy islands and off-shore rocks and will occasionally colony nest on coastal cliffs. They have California species of concern status while in nesting colonies. They are found on the coast and would not occur within the project area.
- **Osprey:** This species' sensitive status pertains to nesting pairs. These raptors hunt over wide expanses of open water and usually nest in the tops of large isolated trees near shorelines. They occur near large, fish-bearing waters in ponderosa pine or mixed conifer habitats and mostly feed over open waters for fish. They nest on platforms of sticks on top of large snags or dead-topped trees, or man-made structures, usually within close proximity of the water. Both suitable nesting and feeding habitats are present in the Bishop Pine Series, and adult osprey were observed in the area during field surveys. Osprey are potentially present within the airport property in their sensitive nesting state. A survey for nesting osprey should be undertaken prior to disturbance in the area between April 1 and August 31.
- **White-tailed kite:** These raptors nest and seek cover in dense tree canopy adjacent to open fields and wetlands where they hunt rodents. The dense forest surrounding the project site could provide cover adjacent to the suitable open hunting area near the airstrip. They are a California species of concern while nesting. A survey for nesting kites should be undertaken prior to disturbance in the area between April 1 and August 31.
- **Sharp-shinned hawk:** These raptors prefer densely wooded, north-facing slopes that provide cool, moist habitat near water. Typical habitat includes a poorly developed ground cover layer beneath the forest canopy. Dead-topped trees or snags are critical for perches and prey plucking sites. Nesting usually occurs in the densest portions of the forest. There

are no CNDDDB accounts of this species within the area covered by the Mendocino and Mathison Peak quadrangles. The surrounding closed-cone pine forest adjacent to the airport does not provide the cool, moist forest preferred by these birds. Therefore, there is a low potential for this species to occur within the project area.

- **Merlin:** These small birds of prey are uncommon winter migrants that prefer coastlines, open grasslands, savannas, woodlands, lakes, wetlands, and edge habitats. They are typically not found in heavily wooded areas. Habitats range widely from annual grassland to ponderosa pine to montane hardwood-conifer. Merlins use dense tree stands near water for nesting and cover, and often use sticks nests constructed by other raptors. They do not breed in California. Suitable wintering habitat may occur in forest edge habitat surrounding the ponds at the northeast end of the airport property.
- **Purple martin:** These passerine (perching) birds prefer open, old growth, multilayered woodland with nearby water. They also occur in adjacent Douglas fir and redwood forest. These birds may nest as pairs in old woodpecker cavities or in colonies in large hollow snags, and are readily observed when present. The Bishop pine forest along the northwest end of the property provides only marginal habitat for the species while the pygmy cypress forest is not suitable. The species is unlikely to be present.
- **Red tree vole:** These voles are both a federal species of concern and a California species of concern. This arboreal species is restricted to the north coast fog belt where the ample moisture of Douglas fir needles provides adequate drinking water for these voles. They typically nest in Douglas fir and use the needles for food. Nests are located in the upper branches (as much as 150 feet high) against the tree trunk. There are accounts of the vole in the CNDDDB throughout the two surrounding quadrangles, usually in steep canyons along creeks. The airport property does not provide suitable habitat for the species but appropriate habitat may occur southwest of the site along the densely forested slopes of Buckhorn Creek.

5.0 FIELD SURVEY RESULTS

5.1 Botanical Field Survey Results: Table 5 presents the results of the floristic-level botanical survey of the entire property. Each of the sensitive plant taxa potentially occurring at the site and listed in Tables 2 and 3 was specifically searched for during the survey. The survey identified a total of 50 plant taxa on the property. All but seven of the plants observed here are native species.

The unique soils and hydrology that support the pygmy cypress forest community along the Mendocino Coast are known to support a number of sensitive plant species. This site is no exception. Five sensitive plant populations were identified during the surveys. Four of them are CNPS List 1B plants. The fifth, Bolander's reed grass, was recently downgraded to CNPS List 4. These plants are listed in Table 6.

TABLE 5. FLORA OF THE LITTLE RIVER AIRPORT EXPANSION PROJECT

| Habit | Species | Common Name | Family | Origin |
|--------|--|--------------------------------|------------------|----------|
| lichen | <i>Cladonia portentosa</i> ssp. <i>pacifica</i> | coastal reindeer moss | Cladoniaceae | N |
| fern† | <i>Blechnum spicant</i> | deer fern | Blechnaceae | N |
| fern† | <i>Pteridium aquilinum</i> var. <i>pubescens</i> | bracken fern | Dennstaedtiaceae | N |
| forb | <i>Anaphalis margaritacea</i> | pearly everlasting | Asteraceae | N |
| forb | <i>Carex echinata</i> ssp. <i>phyllomanica</i> | star sedge | Cyperaceae | N |
| forb | <i>Carex obnupta</i> | slough sedge | Cyperaceae | N |
| forb | <i>Carex sitchensis</i> | Sitka sedge | Cyperaceae | N |
| forb | <i>Carex subbracteata</i> | small-bracted sedge | Cyperaceae | N |
| forb | <i>Eleocharis macrostachya</i> | creeping spikerush | Cyperaceae | N |
| forb | <i>Drosera rotundifolia</i> | round-leaved sundew | Droseraceae | N |
| forb | <i>Equisetum hyemale</i> ssp. <i>affine</i> | common scouring rush | Equisetaceae | N |
| forb | <i>Lotus aborigines</i> | rosy lotus | Fabaceae | N |
| forb | <i>Lotus formosissimus</i> | bicolor lotus | Fabaceae | N |
| forb | <i>Vicia sativa</i> ssp. <i>nigra</i> | narrow-leaved vetch | Fabaceae | A |
| forb | <i>Iris douglasiana</i> | Douglas' iris | Iridaceae | N |
| forb | <i>Juncus effusus</i> var. <i>brunneus</i> | brown bog rush | Juncaceae | N |
| forb | <i>Stachys albens</i> | white-stem hedge nettle | Lamiaceae | N |
| forb | <i>Nuphar lutea</i> ssp. <i>polysepala</i> | yellow pond lily | Nymphaeaceae | N |
| forb | <i>Rumex acetosella</i> | sheep sorrel | Polygonaceae | A |
| forb | <i>Pedicularis densiflora</i> | Indian warrior | Scrophulariaceae | N |
| forb | <i>Sparganium emersum</i> ssp. <i>emersum</i> | narrow-leaf bur reed | Typhaceae | N |
| forb | <i>Typha latifolia</i> | broad-leaved cattail | Typhaceae | N |
| forb | <i>Viola sempervivons</i> | everlasting violet | Violaceae | N |
| grass | <i>Arrhenatherum elatius</i> | tall oatgrass | Poaceae | A |
| grass | <i>Calamagrostis bolanderi</i> | Bolander's reed grass** | Poaceae | N |
| grass | <i>Cortaderia selloana</i> | pampas grass | Poaceae | A |
| grass | <i>Deschampsia danthonioides</i> | annual hairgrass | Poaceae | N |
| grass | <i>Hierochloa occidentalis</i> | western sweetgrass | Poaceae | N |
| grass | <i>Holcus lanatus</i> | common velvet grass | Poaceae | A |

| Habit | Species | Common Name | Family | Origin |
|-------|---|------------------------|----------------|--------|
| grass | <i>Vulpia bromoides</i> | brome fescue | Poaceae | A |
| shrub | <i>Baccharis pilularis</i> | chaparral broom | Asteraceae | N |
| shrub | <i>Arctostaphylos columbiana</i> | hairy manzanita | Ericaceae | N |
| shrub | <i>Arctostaphylos mendocinensis</i> | pygmy manzanita* | Ericaceae | N |
| shrub | <i>Arctostaphylos nummularia</i> | Mendocino manzanita | Ericaceae | N |
| shrub | <i>Gaultheria shallon</i> | salal | Ericaceae | N |
| shrub | <i>Ledum glandulosum</i> | Labrador tea | Ericaceae | N |
| shrub | <i>Vaccinium ovatum</i> | California huckleberry | Ericaceae | N |
| shrub | <i>Cytisus scoparius</i> | Scotch broom | Fabaceae | A |
| shrub | <i>Ceanothus foliosus var. vineatus</i> | Vine Hill ceanothus* | Rhamnaceae | N |
| shrub | <i>Rubus ursinus</i> | California blackberry | Rosaceae | N |
| tree | <i>Alnus rubra</i> | red alder | Betulaceae | N |
| tree | <i>Cupressus goveniana ssp. pigmaea</i> | Pygmy cypress* | Cupressaceae | N |
| tree | <i>Arbutus menziesii</i> | Pacific madrone | Ericaceae | N |
| tree | <i>Lithocarpus densiflorus var. densiflorus</i> | tanoak | Fagaceae | N |
| tree | <i>Pinus contorta ssp. bolanderi</i> | Bolander's beach pine* | Pinaceae | N |
| tree | <i>Pinus muricata</i> | Bishop pine | Pinaceae | N |
| tree | <i>Pseudotsuga menziesii var. menziesii</i> | Douglas fir | Pinaceae | N |
| tree | <i>Salix scouleriana</i> | Scouler's willow | Salicaceae | N |
| tree | <i>Sequoia sempervirens</i> | coast redwood | Taxodiaceae | N |
| vine | <i>Calyptegia purpurata ssp. purpurata</i> | morning-glory | Convolvulaceae | N |

* CNPS List 1B plant

** CNPS List 4 plant

† Ferns and fern allies

Origin: N = Native, A = Alien

TABLE 6. SENSITIVE PLANTS OBSERVED AT THE LITTLE RIVER AIRPORT

| Scientific name³ | Common name | Status |
|------------------------------------|---|---------------|
| Bolander's reed grass | <i>Calamagrostis bolanderi</i> | List 4 |
| Pygmy manzanita | <i>Arctostaphylos mendocinensis</i> | List 1B |
| Vine Hill ceanothus | <i>Ceanothus foliosus var. vineatus</i> | List 1B |
| Mendocino cypress | <i>Cupressus goveniana ssp. pigmaea</i> | List 1B |
| Bolander's beach pine | <i>Pinus contorta ssp. bolanderi</i> | List 1B |

Plants on List 1B are considered by regulatory agencies to qualify as rare under Section 15380(d) of the California Environmental Quality Act (CEQA) and require consideration and subsequent mitigation during CEQA review. List 4 is a "watch list" of plants about which more needs to be known. The California Department of Fish and Game requests that when found, plants on either list be reported to the California Natural Diversity Database in Sacramento for subsequent mapping. This will be done by Northwest Biosurvey.

Each of these species occurs throughout the survey area, however, population densities vary. Bolander's reed grass is a conspicuous member of the cleared pygmy forest area at the southeast end of the runway (shown in red in Figure 2). Pygmy manzanita occurs in a co-dominant mix with Mendocino manzanita throughout the periodically cleared areas surrounding the airport. They also occur throughout the forested areas but in a more open community due to the shading of the forest canopy. These two shrubs are superficially very similar and the nearly continuous low shrub layer throughout the periodically cleared area gives the appearance of consisting of a single species.

The population of Vine Hill ceanothus is thin and widely scattered within the manzanita shrub layer. However, it approaches co-dominance along the periodically cleared strip of land northwest of the hangars. As discussed under the appropriate forest habitats, pygmy cypress and Bolander's pine occur throughout both forests and as seedlings in the periodically cleared areas.

6.0 SUMMARY AND RECOMMENDATIONS

6.1 Summary: This biological assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

³ Correctly termed "specific epithet" but commonly and incorrectly known to as "scientific" or "species" name.

- Review of current California Natural Diversity Database (CNDDDB) mapping of known sensitive plant and wildlife populations within the region,
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *Electronic Inventory of Rare and Endangered Vascular Plants of California*, and the California Department of Fish and Game *Wildlife Habitat Relations System*,
- A California Department of Fish and Game protocol, floristic-level field survey of the plants occurring within and in the immediate vicinity of the project.

Sensitive Plants: A total of 50 native and introduced plant species were identified on the property during the in-season, floristic-level botanical survey. This is a rather low diversity for this 272-acre area but is fairly typical of forested habitat, and the unique soils may suppress the invasion of introduced species. A total of five sensitive plant species were identified within the survey area. As used here, the term sensitive includes species having state or federal regulatory status, included on List 1B or higher by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database (i.e. including List 4 plants).

- **Sensitive Plant Species Known to be Present:** Bolander's beach pine, Mendocino cypress, Pygmy manzanita, Vine Hill ceanothus, Bolander's reed grass.

Each of the species is aggressively re-colonizing the periodically cleared area surrounding the airport.

Sensitive Wildlife: A total of 12 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDDB database for the surrounding quadrangles and/or because the WHR database analysis and staff, based on local experience, determined that there is potentially suitable habitat for sensitive species known to occur in the region. Based on the habitat assessment, the following conclusions are made regarding these 12 species:

- **Sensitive Species that should be assumed to be present⁴:** none
- **Sensitive Species that may be present:** California red-legged frog, northwestern pond turtle, osprey, white-tailed kite, merlin
- **Species determined not, or unlikely, to be present:** lotus blue butterfly, western tailed frog, southern torrent salamander, tufted puffin, sharp-shinned hawk, purple martin, red tree vole.

Sensitive Habitat: The CNDDDB overlays for this area lists six sensitive habitat types: *Sphagnum bog*, *northern coastal saltmarsh*, *coastal brackish marsh*, *coastal and valley freshwater marsh*, *grand fir forest*, *Mendocino pygmy cypress forest*. Of these six, Mendocino pygmy cypress forest is present.

⁴ In each case the term "present" means present in the species' sensitive status. With regard to the raptors discussed here, this status pertains to nesting pairs and protects active nest sites.

➤ **Sensitive habitat known to be present:** Mendocino pygmy cypress forest

While these CNDDDB “natural communities” have no formal regulatory status, they are regarded by the California Department of Fish and Game and most local regulatory agencies as a sufficiently important biological resource to require consideration during CEQA review. With regard to pygmy cypress forest, the habitat contains a number of sensitive plant taxa requiring evaluation and mitigation during the CEQA review process.

6.2 Recommendations:

1. All tree clearing along the perimeter of the runway should be restricted to the minimum required for public safety.
2. Felled trees should be bucked up on site and the rounds and slash loaded onto rubber tired vehicles for removal. Access to these work sites should emphasize use of the least vegetated corridors. Tracked equipment should be excluded from the periodically cleared area and forest communities.
3. Grading, excavation, or other activities that will result in disturbance of the soil profile should not occur within the periodically cleared area or forest edge. The sensitive flora of the pygmy forest community is dependant on the unique soil and soil profile.
4. Any proposed tree clearing between April 1 and August 31 should be preceded by a survey of the adjacent forest within a radius of 300 feet. In the event that nesting raptors are observed within 300 feet of the work area, tree felling should be postponed until after August 31 or until fledging is completed as determined by a qualified biologist.
5. Any work proposed within the drainage channels or ponds may require a 1603 stream alteration agreement from the California Department of Fish and Game. In addition, any work within the bed or banks of the channels or ponds will require permits from the U.S. Army Corps of Engineers (Nationwide 39 permit), and Regional Water Quality Control Board (Water Quality Certification 401 permit).
6. Any proposed work within the ponds or adjacent riparian and wetland habitats should be preceded by a U.S. Fish and Wildlife protocol survey for California red-legged frogs and a survey for northwestern pond turtles.
7. All work within the airport area should be subject to stringent erosion control measures to prevent erosion and sedimentation of waterways.

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