

PART TWO SETTING AND RESOURCE VALUES



PART 2 – SETTING AND RESOURCE VALUES

The New River Area

This management plan update describes BLM’s approach to managing 1,356 acres of public lands located in the New River area. These lands are designated an Area of Critical Environmental Concern (ACEC), because they contain special status wildlife and plant species, rare habitats, cultural resources, and unique recreational opportunities for the public. New River is the focal point of the management area, which extends for nine and a half miles along the southern Oregon Coast from northern Curry County to southern Coos County (Map 2). New River also flows through a variety of other public and private ownerships, including: Coos and Curry Counties, State Parks, and private ranch and rural residential properties. In total, BLM manages approximately 60% of lands adjacent to New River, 25% is in private ownership, the State of Oregon owns 10%, and Coos and Curry Counties own 5% combined.

How to Reach New River

Storm Ranch

From Highway 101, the public can access the New River ACEC at four different locations. The central and most widely-used access point to the ACEC is via Croft Lake Lane, located eight miles south of Bandon. This portion of the ACEC is referred to as Storm Ranch, named after the long-time owners of the property before eventually being acquired by the BLM. It offers the best access for hiking, boating, fishing, and picnicking. Entry into the area is controlled by an entrance gate, which is open year-round from sunrise to sunset.

Floras Lake

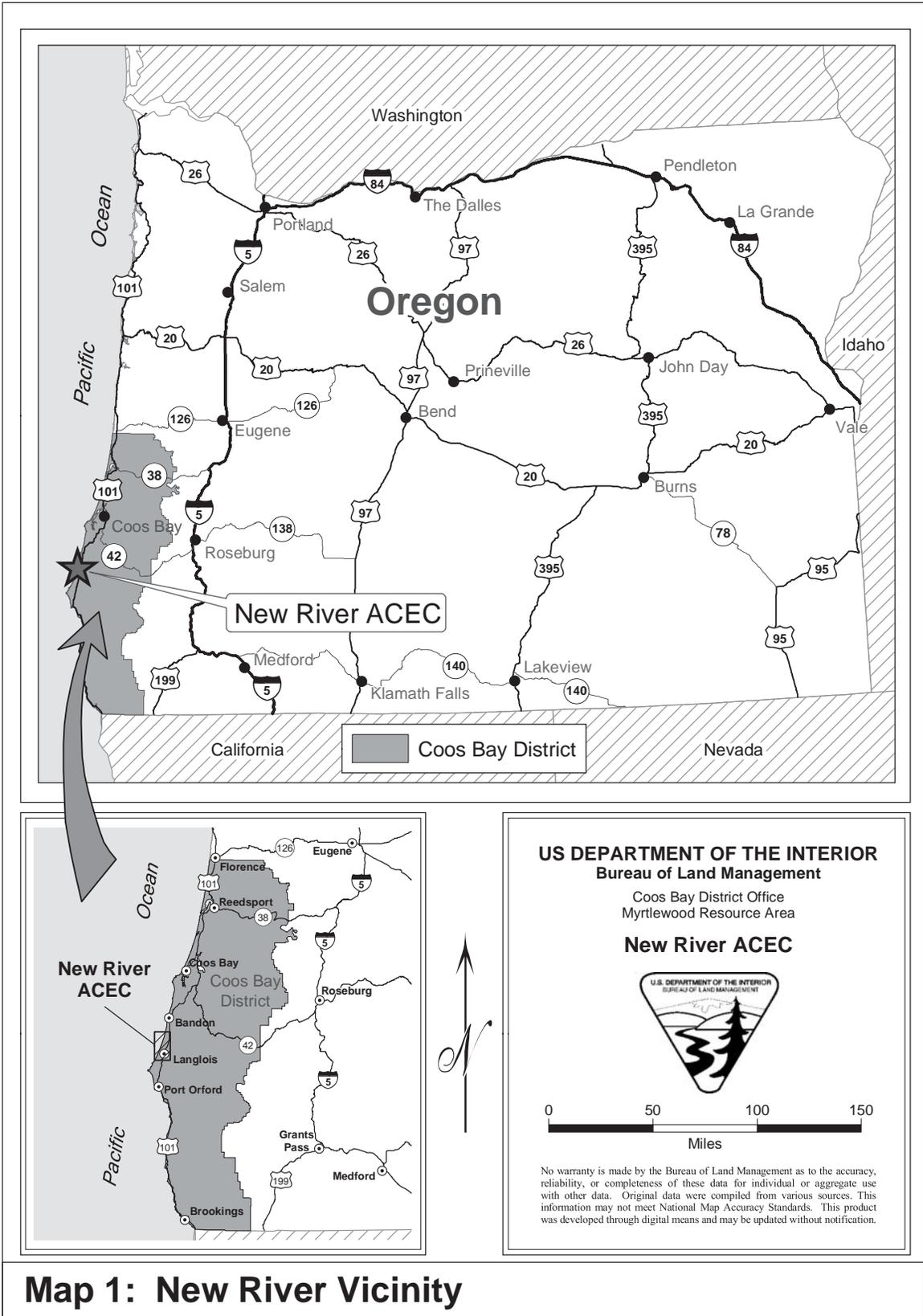
The southern access point to the New River ACEC is at Floras Lake. Visitors can park in the lower day-use parking lot of Boise-Cope County Campground. A footbridge over the lake outlet provides hiking opportunities to the beach. Access for boating begins at the boat launch just north of the footbridge. Boaters can float down the outlet to New River and eventually paddle to takeout points at Storm Ranch and Lower Fourmile Road, a distance of approximately eight and ten miles respectively.

Fourmile Creek

A third access point to the ACEC is via Lower Fourmile Road. A small gravel parking area is located on the south side of the road before it makes a sharp curve to the north. At this point, a trail leads into a fenced meadow where visitors can proceed on foot to New River. This short hike provides an opportunity to portage a canoe or kayak out to the river. Private property surrounds this small, isolated parcel, and visitors are asked to respect the privacy of the residents.

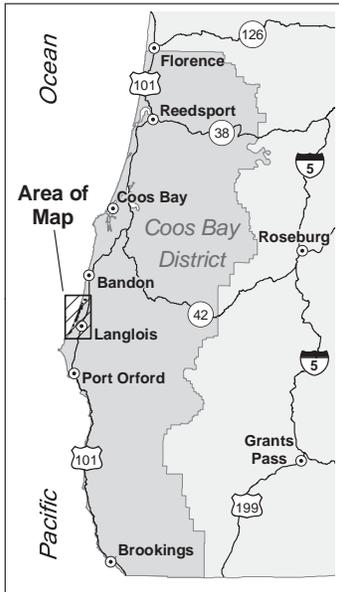
Lost Lake

The northernmost entrance into the ACEC provides access to an isolated BLM parcel that surrounds Lost Lake. This area can be reached via McTimmons Road to Woods Way. A foot trail begins at a small parking lot on the east side of Lost Lake. The trail borders the southern edge of the lake and leads to a series of large sand dunes. Traversing the dunes will lead visitors to New River and the ocean. The Lost



Legend

-  Stream
-  Primary Road
-  Water Body
-  State-owned Beach Zone 'Wet Sand'
-  New River ACEC
-  BLM Administered Land
-  BLM Administered Land Outside of New River ACEC



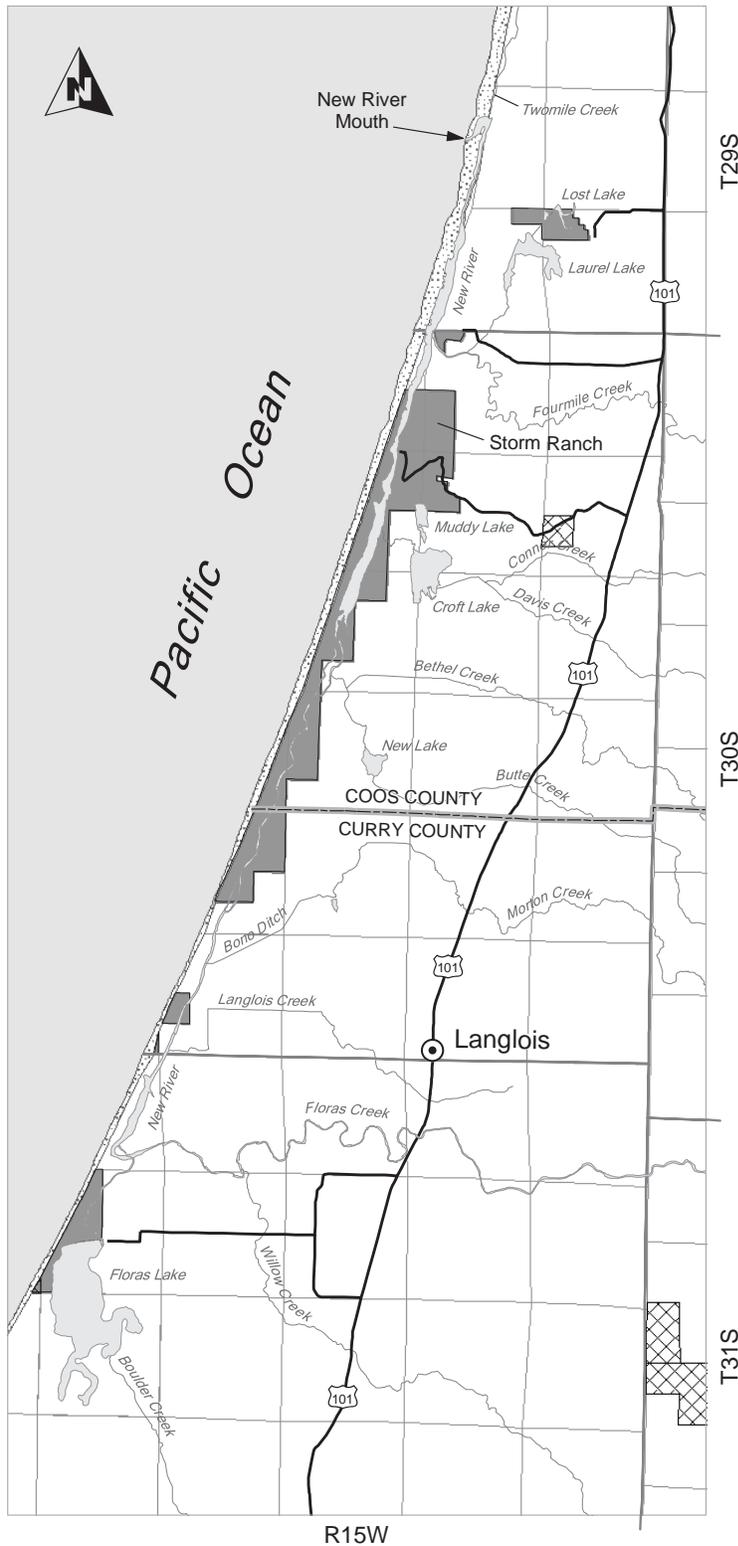
Location Map

**US DEPARTMENT OF THE INTERIOR
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Coos Bay District Office
Myrtlewood Resource Area
New River ACEC



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Map 2: New River ACEC

Lake portion of the ACEC is bordered to the west by Bandon State Park and Coos County land. All other lands surrounding Lost Lake are privately owned. Visitors are asked to respect the privacy of the residents.

Social and Economic Factors

According to the 2000 census, Coos and Curry Counties have populations of 63,000 and 21,000 respectively. Communities in the general area of New River include: Bandon (population 2,833), Port Orford (population 1,153), and Langlois (population 593) (U.S. Census Bureau 2000).

Primary industries in the two counties are timber, fishing, farming, ranching, and tourism. In the timber and fishing sectors, employment has dropped considerably. In contrast, tourism in Coos and Curry Counties is on the rise. Each year between Memorial Day and Labor Day, several hundred thousand tourists travel through the two counties on Highway 101.

A shift in industry focus is not the only changing socio-economic factor on the southern Oregon Coast. Another is the demographic trend in Coos and Curry Counties as growing numbers of retirees and urbanites relocate to the Oregon Coast from metropolitan centers. Also encouraging the coastal population influx, until recently, were low housing and real estate costs. Many people from other states have purchased property for retirement or speculative purposes. Conversely, rising property and housing costs and unemployment are contributing to an exodus of longtime local residents. Particularly affected are those associated with struggling industries who are seeing their livelihood disappear.

Given these socio-economic changes, the two counties are realizing the importance of their tourism industry and are making plans to expand their appeal. Communities such as Coos Bay and Bandon for example, are upgrading their downtown areas. In Langlois, old, distinctive buildings are being converted to businesses such as art and antique shops. Along the Highway 101 corridor, many homes are now being used for commercial pursuits such as bed and breakfast operations or gift shops. In addition, both Coos and Curry Counties have completed tourism development plans in the last decade as part of their overall economic strategies. Both plans emphasize nature-based tourism as a major component to achieve economic growth.

The New River ACEC plays a role in the socio-economic conditions of the region. First, New River offers opportunities for the counties to achieve nature-based tourism goals. In addition, the protected natural environment of the New River ACEC adds economic value to adjacent private properties. Finally, capital developments that BLM has added at New River to support outdoor recreation are solid investments that add to the quality of life for those living in the region. All of these values can in turn enhance the region's ability to attract outside business investment.

Another major social and economic element in both Coos and Curry counties is the large rural population. Most of this sector depends on agricultural commodities such as small private woodlots, dairies, cranberry farming, and cattle and sheep ranching. Of these, the cranberry industry has shown the most increased activity, with bog development up 37% in the mid 1980s and 1990s (Ocean Spray Cranberries, Inc. 1993). This is particularly evident on private lands surrounding the northern portion of the ACEC along Croft Lake Lane.



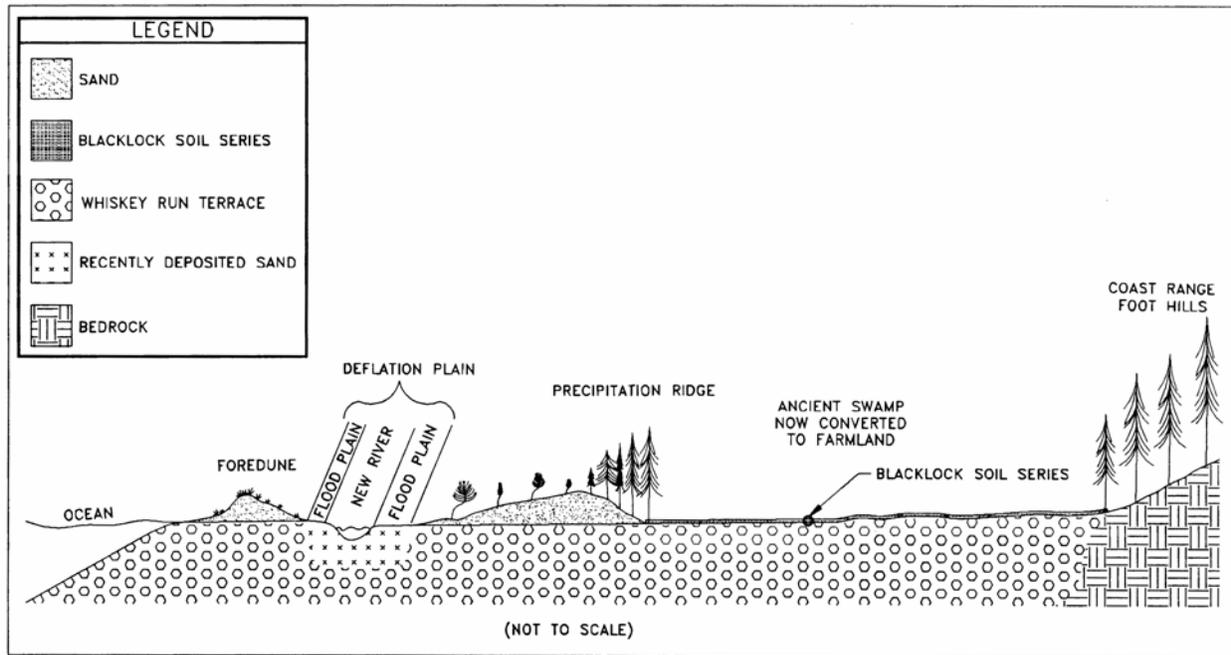
Modern-day Langlois, looking north on Main Street (present-day Highway 101).

Livestock grazing has been a dominant economic use of the New River area since the mid-1800s with the arrival of the first homesteaders. Over the years, grazing conditions improved by clearing land and draining wetlands. Currently, several large working cattle and sheep ranches are located along New River's southern reaches. Some of these ranchers had grazing leases with the BLM in the New River ACEC. These leases have since been cancelled and cooperative management agreements have taken their place. The purpose of establishing these agreements is to adjust livestock grazing practices in order to better protect sensitive riparian and wetland habitats along New River. See Objective 10: Coordination and Cooperation.

Geology

Sand deposition and erosion from the ocean has played a major role in creating the current landforms and water movement patterns seen today at New River. The most common landforms in the New River area include: the beach, foredune, deflation plain, floodplain, precipitation ridge, and terraces.

Figure 2. Geological landforms of the New River area



The best known and most recent terrace is the Whiskey Run Terrace. The minerals composing this terrace include coarse to fine quartz, various plagioclases, opaque mica, amphiboles, pyroxenes, and other minor silicate minerals. The deposit is a relatively thick layer, possibly as deep as 500 feet in places. It was deposited approximately 10,000 years ago during the Pleistocene Ice Age. During the late Pleistocene, the area was part of a long, flat beach which extended between Charleston and Port Orford.

This beach was uplifted by plate tectonics and then dissected by the small streams flowing from the Coast Range. Rising sea level, since the last ice age, has covered some portions of the Whiskey Run Terrace along the coast. Inland areas are now colonized by vegetation.

Common soils at New River, developed on the Whiskey Run terrace, include the Blacklock soil series which is characterized by a partially cemented layer about a foot below the surface. The hardpan layer makes water infiltration difficult, causing it instead to collect on or near the soil surface. This feature makes Blacklock soils favorable for wetland development such as cranberry farming.

The New River Spit is located within the Bandon Littoral Cell. The cell is bound by Blacklock Point to the south and Cape Arago to the north. The total shore length of the cell is approximately 27 miles. The littoral cell does not allow for migration of sand sediment beyond the bounding points of the cell (Komar et al. 1999).

The bedrock geology underlying the New River Spit area consists of Jurassic Otter Point Formation (Ramp and Gray 1977) and possibly Eocene Roseburg Formation (Phillips et al. 1982), later defined as Siletz River Volcanics by some and the Umpqua Group by others. The Otter Point Formation consists of sandstone, siltstone, mudstone intermixed with meta-sediment, and metamorphic rock within a mélangé. The mapped Roseburg Formation consists of sandstone with siltstone and mudstone. However, the New River Spit is impacted by the Quaternary sediments of sand forming the beach and accompanying dune field. The sediment on the southern portion of the spit is coarse, derived from Blacklock Point and adjacent sea cliffs. In general, sea cliff erosion in the Bandon area is minimal because tectonic uplift exceeds sea level rise, giving a net decline in sea level. Erosion from the sea cliffs is due to groundwater movement as opposed to wave action (Komar 1997). Blacklock Point is mapped as ultramafic rock containing serpentinite and peridotite. The sea cliffs directly north of Blacklock Point have been mapped as containing Pleistocene marine terrace sediments (Komar et al. 1999).

Sediment for the northern portion of the spit may be supplied by the Coquille River (Komar et al. 1999). However, in other writing by Komar (1997), it is suggested that the sediment provided by an estuarine system is very limited and that beach material has been provided by sea cliffs and prehistoric material from the Columbia River Drainage. The only contribution of sediment from New River itself is from the erosion of sand dunes and overwash sediment, resulting from a recycling of former beach sand. The principle loss of sand from the beach occurs when it is blown inland to form dunes (Komar et al. 1999).

The New River Spit contains characteristics of a dissipative beach along the northern, finer-grained beach and characteristics of a reflective beach along the southern, coarser-grained beach. The dissipative beach tends to be more stable, responding less to major storms and undergoing smaller changes in elevations from summer to winter. The reflective beach tends to be less stable, changing rapidly in slopes and elevations during individual storms and from summer to winter (Komar et al. 1999).

The most significant change in the New River Spit is the progressive migration of New River's mouth to the north, which has shifted its position by 2.9 miles in 30 years (Komar et al. 1999). Related to this shift northward has been the explosive growth of dune vegetation during the last century. European beach grass was first introduced to the North Spit, Coos Bay, in 1891 to control dune movement, but rapidly spread along the coast soon thereafter (Beckham 2000). During the 1930s it became established in the New River area (BLM 1995, as found in Komar et al. 1999), and its effect on the stability of the spit has been significant. The creation and elevation of the foredune has served as a barrier to high tides and storms, increasing the stability of the spit where the foredune has not been cut away by breaching events (Komar et al. 1999).

There has been a progressive increase from north to south in the elevations of the toe of the foredune, ranging from about 10 feet in the north to 22 feet in the south, based on National Geodetic Vertical Datum. This is due to the presence of coarser sediment of the beach allowing for greater elevation gain in wave run-up. Coarser grained sands maintain a higher angle of repose than fine grain sands due to functions of the angle of internal friction (Easterbrook 1993).

At present, the level of stability of the New River Spit varies along its length, with it being unstable to the north where the foredune elevation is low, permitting frequent storm overwashes and unstable at the south where breaching is likely to recur due to the sharp bend in the river. The spit is relatively stable along its central stretch where high dunes have developed (Komar et al. 1999). This analysis was completed before the removal of European beach grass and the reduction of dune elevation which began in the late 1990s.

Long-term tectonic and catastrophic seismic events could have impact on the New River Spit. Currently, tectonic uplift of the North America Plate at the New River Spit site exceeds the current rise in ocean levels by 0.7 millimeters per year (Komar et al. 1999). This small amount of rise may have little impact

on the spit. However, the tectonic rise is believed to be the result of plate binding within the Cascadia Subduction Zone. Historic records show that every 400 years (+/- 200 years) the plate binding is released, resulting in a Cascadia event tectonic movement (Komar et al. 1999, Priest 1995b, Peterson et al. 1997). This movement can result in a subsidence of the North American Plate of several feet, effectively “raising the sea level” along the spit, allowing for erosion, overwash, and relocation eastward of the beach.

Other events can deliver a series of waves related or unrelated to plate subsidence. These tsunamis, whether from a Cascadia Event, other distant plate movements, or submarine landslides, may deliver waves with sufficient height and energy to overtop the spit, relocating sand and dune and creating breaches. Such effects were witnessed on the New River Spit from tsunamis delivered by the 1964 Good Friday Earthquake in Alaska (Komar et al. 1999). The spit has been mapped to be 1.3 miles within the tsunami run-up boundary (Priest 1995a).

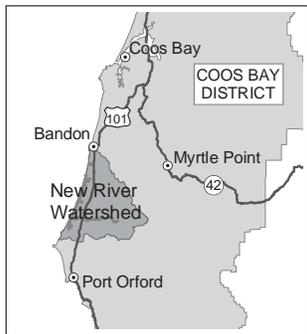
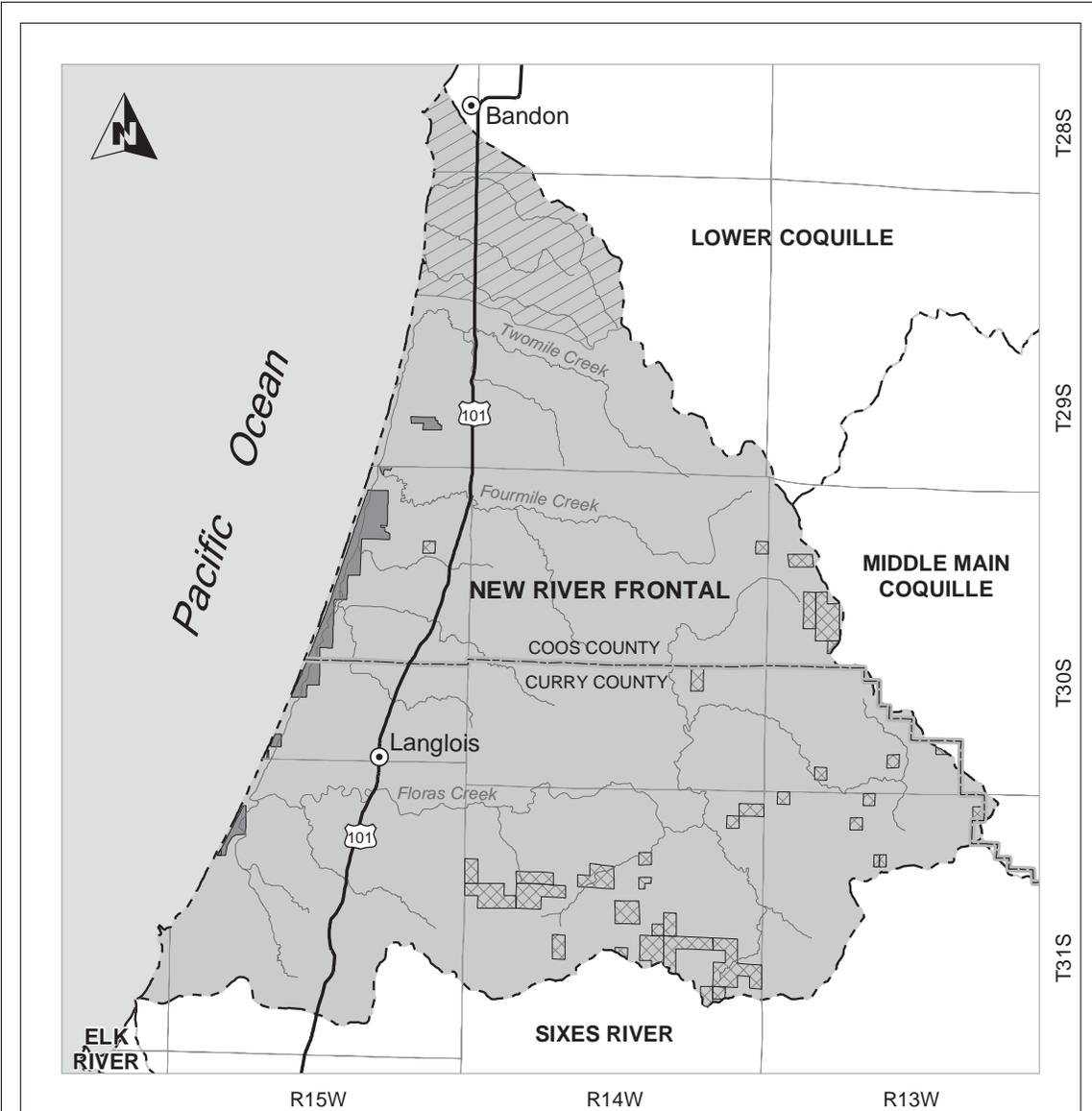
Review of aerial photographs show the mobility of sand within the New River Spit and the subsequent stabilization and starvation of the dune field due to the encroachment of European beach grass. The coastal lakes east of the New River Spit are dune impounded features, formed by the blocking of drainages from migrating dunes. Aerial photographs from 1932 show active dune fields within and east of the present New River. The point where the active dune field stops to the south is also the terminus of the New River northerly flow.

A dune field is supplied by sediment from beach sands. When that supply is disrupted, the dune will remove sand from the eastern edge of the disruption and can create a deflation plain. The deflation plain will expand as the dunes within the dune field migrate. The dune will continue migration until there is no more sediment to supply it. As sediment supply is reduced to the precipitation ridge and the dune, vegetation will encroach, stabilizing the dune. This process appears evident in the historic aerial photography of the New River Spit. However, as proposed by Komar (1997), stabilized dunes (both dune fields and foredunes) can be reactivated. A possibility does exist that removal of stabilizing vegetation from the foredune can reactivate the dune field progression, greatly impacting the deflation plain with new sediment. Monitoring will be established to track this possibility.

In 1993, a mineral withdrawal from mineral entry under the Mining Law of 1872 was placed on the New River ACEC, closing it to mining claims.

Hydrology

Unlike a classic watershed, New River receives flow from multiple drainages along its nine-and-a-half-mile length, and depending upon conditions, may have zero to multiple discharge points to the Pacific Ocean. New River begins as a lower river extension of Floras Creek, which has a drainage area of 70 square miles (mi²). As New River flows further north, it gains additional waters from the Floras Lake drainage (12 mi²); Morton Creek, Butte Creek, Bethel Creek, Davis Creek, Conner Creek, New Lake, and Croft Lake drainages (23 mi²); Fourmile Creek drainage (22 mi²); and Twomile Creek drainage (15 mi²). Collectively, 142 square miles of surface area contribute to the New River watershed.



Location Map

Legend

- 5th-Field Watershed Boundary (Labeled with watershed name)
- Major Stream
- Primary Road
- Township Line
- Water Body
- New River Frontal Watershed
- Non-Contributing Area to New River
- BLM Administered Land
New River ACEC
- BLM Administered Land
Outside of New River ACEC

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Map 3: New River Frontal Watershed

New River is best described as a D5c-D6c stream under the Rosgen stream classification system (Rosgen 1994). This means the river has a fairly straight, unconfined channel (water can easily flow over the banks during heavy precipitation). It also has a very low gradient, sand/silt bed with occasional multiple side channels. Uncharacteristic of most rivers, New River runs parallel to the ocean and is separated by a foredune along its entire length. The river periodically breaches over the foredune during winter storms, leading to dramatic shifts in water levels. The ocean can also wash over low areas of the foredune when rough seas and wave run-up conditions occur. This process carries sand and log material into the river and leaves deposits, often narrowing the river in the vicinity of an overwash.



New River between New Lake and Croft Lake outlets.

Riparian/wetland types at New River can be distinguished by salinity levels ranging from saltwater to freshwater. This range of salinity creates three distinct areas along the river: estuarine tidal, where active mixing of salt and fresh water occurs; inter-tidal, where some salt water is present; and riverine, found in the 'upper' reaches of New River, which has no salt water influence.

In addition to wetlands found along the river margins, freshwater wetlands occur inland in topographical depressions (Cowardin 1979). These wetlands vary in type depending on vegetation, hydrological characteristics, and soils. Wetland habitats are further discussed in the Botany section of this plan.

Seasonal rains and runoff patterns have a major effect on New River. More than 80% of annual runoff occurs between November and April coinciding with precipitation patterns. Less than one percent of runoff occurs in the months of August and September. Annual runoff in the watershed averages about 50 inches, and annual yield measures approximately 340,000 acre feet of water.

Like other coastal waterways which empty into the ocean, New River experiences a yearly cycle of change. Near the ocean entrance, the shallow bed allows incoming tidal saltwater to mix easily with the river's freshwater. When the river is open to the sea (usually late fall through spring), these estuarine conditions develop in the northern third of the river. These conditions can also develop in the vicinity of other temporary breaches that occur along the river during extreme flooding events.

During the dry season (late summer and early fall) when stream flow dwindles, northwest winds blow sand across the river mouth which usually closes it. This yearly blockage causes the river to resemble a long, narrow lake. When this occurs, salinity levels diminish and the effect of tides cease in the northern portion of the river. In early summer, average monthly river flow falls to 70 cubic feet per second (cfs) and may drop to less than 10 cfs later in the season. This low-flow condition may cause shallow sections of the river to dry up entirely. This persists until the rains begin again in late fall or early winter, which eventually leads to the river once again breaching across the closed mouth along the foredune.

During winter high flows, the river has maximum energy available to push the mouth further north. This continued northward movement depends on several factors, including: changes in stream slope, width, and depth; water flow and volume; sediment supply; prevailing winds; storm surge; and ocean tides.



Natural mouth of New River at its confluence with Twomile Creek and the ocean.

Another important factor that can limit the northward movement of the river is a temporary breach in another location further south. Occasionally, New River either naturally or artificially breaches across the foredune in areas other than the natural mouth on the northern end of the river. Conditions which naturally contribute to foredune failure include out of bank flows and flooding conditions, river meander patterns which direct higher velocity water into weak locations along the foredune, high tides, and pounding surf.

Historically, one of the more persistent breaching locations has been at the sharp bend of Floras Creek due to fast moving, high-volume flood waters. When the foredune naturally fails or is mechanically breached at this location (as described later), water flow in New River reverses instead of continuing north. This flood relief, whether natural or aided by man, has changed important river channel and bed-form dimensions. For example, north of Bono Ditch, a rise in river elevation has developed. This high spot can cause the channel to fill with sediment, which accentuates channel drying in late summer.



New River breach at the sharp bend of Floras Creek.

Since the 1920s, local residents have mechanically breached New River. This typically occurred in the fall, to allow salmon early entry for fishermen, or in the winter to relieve flooding of low-lying farm and pasture land.

Moderate winter flooding (though at times disruptive to surrounding farms) results in rich deposition of silt deposits along the floodplain and an enhancement of plant growth. Flood waters also allow recharge of the surrounding groundwater table which supports a variety of wetlands and helps to sustain the river flows later in the summer.

New River is young, dynamic, and ever-changing. The river currently shows signs of establishing more defined meanders; more stabilized, vegetated banks; a deeper, narrower channel; and better floodplain connections. However, periodic flooding, ocean over-washing through low spots in the foredune, and wind-blown sand processes cause localized shifts in the river from a more mature back to a juvenile stream state. This interaction of hydrological, morphological, and climatic changes will continue to yield a dynamic river system.

Additional discussions about the hydrology of New River are found in Appendix A: Chronology of Events, and Appendix B: Hydrology of New River.

Water Rights

Oregon water laws and appropriative water right procedures are administered by the Oregon Water Resources Department (WRD). In the New River area, water is used for both domestic and agricultural purposes including: rural residential use, forestry, dairy, ranching (irrigating pastures), and cranberry farming (irrigating cranberries during the growing season and flooding of bogs during harvest time). Water rights information is available from the local watermaster and listed by: stream name, source, priority date,

total allocation of water in cfs. In addition to the current water rights, there are a number of surface and groundwater rights pending in the New River watershed.

In addition, the Oregon Department of Fish and Wildlife (ODFW) has an in-stream water right on Floras Creek to protect fish during low-flow conditions. This ODFW water right assures that there is minimal stream flow present on the lower two miles of the creek during the summer.

Surface and groundwater withdrawals are reducing stream levels in some areas of the New River watershed. This is particularly evident in late summer and early fall when rainfall is lowest and water diversion and groundwater pumping are highest. Studies are needed to determine how groundwater pumping is affecting annual recharge.

Botany

The vegetation at New River is typical of the Oregon Coast, consisting of plant communities on open and stabilized sand dunes, wetlands, and upland shrubland, woodland, or forests. The steep foredune along the beach is backed by a sandy spit that is covered with European beach grass. The deflation plain behind the spit contains the waters of New River. The shores of New River are bordered by a narrow strip of riparian vegetation. This is backed by an herbaceous community, which transitions into a shrubland, woodland, or forest. The latter varies depending upon the time since the last disturbance, the species present, and the amount of cover (Wiedemann 1969, Franklin and Dymess 1973).

The sandy landscape of the New River ACEC is composed of many landforms: beaches, foredunes, deflation plains, interior dunes, rivers and streams, lakes and ponds, and salt marshes. The disturbance processes that affect plants in these habitats include shoreline displacement, ocean overwashes, wind, fire, insects and pathogens, livestock grazing (in some designated areas), changes in hydrology, and human activity. Plant succession from bare sand to climax forest does occur over time in sheltered sites; however, disturbance processes usually intervene to disrupt this pattern at most sites.

A 1958 vegetation map of New River ACEC drawn from 1939 aerial photos (Cooper 1958) shows a foredune stabilized by European beach grass, interspersed with an open sand dune community and some wetlands. This is substantiated by anecdotal accounts from long-time local residents that the shrub and forest communities have increased dramatically in the last thirty years (R. McKenzie pers. comm. cf Christy 1981). Christy (2000, 2002) prepared a map of the historic vegetation of New River based upon turn of the century transcriptions completed by General Land Office surveyors in 1857 and 1880. This vegetation map supports the theory that the New River area was composed primarily of open, shifting sand dunes bordered by vast wetlands.

A 1981 vegetation analysis documented 22 plant communities (Appendix C, Christy 1981). Seven of these communities were discussed in the original New River ACEC Management Plan (BLM 1995). A recent botanical survey inventoried sedges at four New River sites and noted new collections not previously published (Zika et al. 1998). A few horticultural introductions are found around the Ellen Warring Learning Center.

Plant Communities

The New River plant communities include about 330 vascular and about 45 non-vascular species (Appendix C). About 70 species (or 19%) are non-native or exotic. The number of non-vascular species is

likely to increase as more areas are surveyed. Also, the number of exotic and horticultural species is expected to increase along roadways, trails, and areas of human activity as seeds are brought in by people, pets, livestock, and vehicles.

Five vegetation classes, as defined by The National Vegetation Classification Standard (The Nature Conservancy 1994, see <http://biology.usgs.gov/npsveg/nvcs.html>) are present at New River. The vegetation classes are based upon the structure or physiognomic characteristics of the vegetation or species present, as well as the percentage of cover.

Within the five vegetation classes are many alliances and plant associations that are arranged along gradients of moisture, stand structure, soil development, and successional age. An alliance is a physiognomically uniform group of plant associations sharing one or more diagnostic species that are dominant, differential, indicator, or characteristic. These, as a rule, are typically found in the uppermost strata of the vegetation (Muller-Dombois and Ellenberg 1974). It is likely that the area may have up to 50 or more plant associations, similar to that found at the Oregon Dunes National Recreation Area, located about 65 miles to the north of New River (Christy et al. 1998). A complete vegetation classification for New River is needed to determine these associations.

New River's five vegetation classes are: forest, woodland, shrubland, dwarf-shrubland, and herbaceous. Following is a brief description of each:

Forest

A forest vegetation class has trees with overlapping crowns that generally form 60 to 100% of cover. It is composed of evergreen and deciduous forest species that are upland, seasonally flooded, or saturated. At New River the forest contains Sitka spruce, Douglas-fir, western hemlock, shore pine, madrone, Port-Orford-cedar, and red alder. Numerous shrubs are present, the most common being hairy manzanita, evergreen huckleberry, and salal.

Woodland

A woodland vegetation class has open stands with crowns not usually touching that generally form 25 to 60% of cover. It is composed of evergreen forest species that are upland. A shore pine and Sitka spruce woodland dominates the easternmost portions of the ACEC. The shore pine community consists of two types, depending on the amount of moisture. In drier areas the understory is scattered with European beach grass and mosses, and in wetter areas the understory consists of sedges and willows.

Shrubland

A shrubland vegetation class is greater than 0.5 meters tall and generally has greater than 25% of cover. (Tree cover, if present, is generally less than 25%.) It is composed of deciduous shrubs that are upland, seasonally flooded, or saturated. At New River, this community is composed of Hooker willow, Douglas spiraea, manzanita species, slough sedge, and European beach grass. Upland shrub areas are located east of the river and generally in the northern portion of the Storm Ranch area. The wettest areas are along the river.

Dwarf-shrubland

A dwarf-shrubland vegetation class is composed of shrubs less than two feet tall with cover generally greater than 25%. (The tree cover, if present, is generally less than 25%.) At New River, this community

is composed of deciduous dwarf-shrubs, such as bog blueberry, and is seasonally flooded. Sphagnum moss is nearly always present among the stems of the bog blueberry.

Herbaceous

An herbaceous vegetation class is composed of graminoids, forbs, and ferns. Cover is generally greater than 25% and if present, trees and shrubs generally produce less than 25% of the cover. There are several community alliances within the following three associations: (1) perennial grasses that are upland, seasonally flooded, or tidally flooded, (2) perennial forbs and ferns that are upland, seasonally flooded, and semi-permanently flooded, and (3) hydromorphic rooted vegetation (meaning non-emergent grasses and forbs structurally supported by water) that is permanently flooded.

Wiedemann (1984) lists nine dune maritime endemics species that are herbaceous. These species only occur on the beaches and dunes of the Pacific Coast of North America. Of these, eight are known to occur at New River: yellow sand-verbena, silver bursage, American glehnia, beach pea, beach evening-primrose, seashore bluegrass, black knotweed, and dune tansy.

Open sand dunes are naturally created and maintained by wind and water. Open dunes are scattered on the ACEC, but they have been in a state of decline since 1891 when European beach grass was first introduced along the Oregon Coast (Beckham 2000). This historic habitat may be restored by active vegetation management techniques, such as disking, bulldozing, and hand pulling of vegetation. These restorative techniques are currently being implemented by the BLM in portions of the ACEC.

Meadows, grasslands, and pastures occur in the eastern portion of the ACEC and are also interspersed throughout the other upland habitats. Species present in these communities include tufted hairgrass, California oatgrass, Oregon-grape, red barberry, Fremont's deathcamas, mountain iris, and cat's-ears. Wetlands are scattered throughout the ACEC in the form of fens, ponds, mudflats, freshwater marshes, and salt marshes. These wetlands support yellow pond-lily, California pitcher-plant (*Darlingtonia*) and many species of sedges and rushes.



California pitcher-plant (*Darlingtonia californica*)

Coast Range Ecological Cells & Global Significance

The New River ACEC typifies two Coast Range Ecological Cells defined in the Oregon Natural Heritage Plan (Natural Heritage Advisory Council 2003). The contribution of these diverse vegetation habitats to the life requirements of plant and animal species, including special status plants and animals, is significant. The lacustrine cell is representative of a dune-blocked lake with aquatic beds and marshy shore, surrounded by unconsolidated sands. The palustrine cell is representative of the Labrador tea/sphagnum moss mire on organic soils with California pitcher plant, including associations with shore pine and western red cedar.

New River ACEC also has Coast Range Special Species for the Oregon Natural Heritage Plan. It contains dwarf brodiaea (*Brodiaea terrestris*), liverwort (*Calypogeia sphagnicola*), timwort (*Cicendia quadrangularis*), russet cotton-grass (*Eriophorum chamissonis*), western lily (*Lilium occidentale*), silvery phacelia (*Phacelia argentea*), and water clubrush (*Scirpus subterminalis*).

The Natural Heritage Program uses a prioritization system for determining global significance of plant communities. On a scale of 1 to 5, “global rankings” are based on the number, quality, and condition of the occurrences; the narrowness of range; the trends in populations and habitats; and the threats to and the fragility of the element being assessed. The global ranks are as follows:

- G1 – critically imperiled globally (typically 5 or fewer occurrences)
- G2 – imperiled globally (typically 6 to 20 occurrences)
- G3 – rare or uncommon but not imperiled (typically 21 to 100 occurrences)
- G4 – not rare and apparently secure, with numerous long-term occurrences (usually more than 100 occurrences)
- G5 – demonstrably widespread, abundant and secure

Two plant communities, found only along the North American Pacific Coast, are rare and declining at New River (Kagan et al. 2004). These communities have declined throughout their range for various reasons, including: the introduction of non-native plant species; agricultural, residential, and recreational developments; possible dewatering of coastal aquifers; and competition by encroaching conifers due to the suppression of natural fires.

The occurrence of these plant communities in areas such as New River is extremely important. They are afforded recognition, protection, and restoration as Areas of Critical Environmental Concern. The Coos Bay District Resource Management Plan calls for protection of special habitats on a case-by-case basis (BLM 1995).

The two globally ranked plant communities at the New River ACEC are:

- Unstabilized coastal dune wildrye (*Leymus mollis* ssp. *mollis* – *Lathyrus japonicus*) is a G1 plant community that is critically imperiled globally. This community was likely much larger historically at New River, but today only small, isolated patches are present. It has been out-competed and replaced by European beach grass.
- Bog blueberry and tufted hairgrass shrubswamp (*Vaccinium uliginosum* – *Deschampsia cespitosa*) is a G2 plant community that is imperiled globally. This community was probably never common or of large extent. It is presently being encroached by conifers and willows. Overtopping by these species may threaten this community’s persistence.

Special Status Plant Species

Sixteen special status vascular plant species either occur or are suspected to occur within the boundaries of the New River ACEC. A species that is suspected to occur means that habitat is present or is known to be located on adjacent lands (Table 1, Oregon Natural Heritage Information Center 2004). Plants which have special status designation require habitat management. Six species are of special mention – one is listed as federally endangered while five are species of concern.

Pink sand-verbena

Pink sand-verbena (*Abronia umbellata* ssp. *breviflora*) is a federal species of concern, listed endangered by the State of Oregon, and Bureau sensitive. This annual herb historically occurred from British Columbia, Canada, to Marin County, California. It is believed to be extirpated from Washington. Two plants were observed in 2000 on Vancouver Island. Habitat for pink sand-verbena includes sandy beaches above the high tide line and possibly dunes further inland. The primary threats to pink sand-verbena are loss of habitat from the encroachment of European beach grass and disturbance from off-highway vehicles (OHVs). A population of this species has been created within the New River ACEC as part of recovery efforts. Sections of European beach grass between New River and the Pacific Ocean have been removed by mechanical means and prescribed fire. Since 1991, about 80,000 to 100,000 seeds have been spread annually in these cleared areas. The population has gradually increased in number and in 2003, 917 plants were documented.



Pink sand-verbena (*Abronia umbellata* ssp. *breviflora*)

Seaside cryptantha

Seaside cryptantha (*Cryptantha leiocarpa*) is a federal species of concern and is Bureau sensitive. This annual herb occurs on stabilized coastal dunes and prairies usually within 300 meters of the beach from Curry County, Oregon, to southern California. Little is known about its ecology or biology. The species is threatened by loss of habitat from encroachment of exotic species such as European beach grass, coastal development, and OHVs. One occurrence is currently known from within the ACEC.

Seaside gilia

Seaside gilia (*Gilia millefoliata*) is a federal species of concern and is Bureau sensitive. This annual herb occurs on stabilized coastal dunes and prairies usually within 300 meters of the beach from Curry County, Oregon, to central California. Little is known about its ecology or biology. This species is threatened by loss of habitat from encroachment of exotic species such as European beach grass, coastal development, and OHVs. One occurrence is currently known to exist within the ACEC.

Silvery phacelia

Silvery phacelia (*Phacelia argentea*) is a federal species of concern, listed threatened by the State of Oregon, and is Bureau sensitive. This perennial herb occurs on sandy beaches and coastal bluffs from Coos County, Oregon, to Del Norte County, California (where only four occurrences are known). This species is threatened by loss of habitat from European beach grass and disturbance from OHVs. Three occurrences are currently known to exist within the ACEC.

Western lily



Western Lily (*Lilium occidentale*)

Western lily (*Lilium occidentale*) is a federally endangered species and Bureau sensitive. In 1995, it was discovered at the New River ACEC. The region was identified as historically having the greatest concentration of western lily populations in Oregon (Ballantyne 1980). This perennial herb ranges from Coos County, Oregon to Humboldt County, California. It is almost always found on Blacklock type soils (soils with a cemented, clay hardpan) in habitats such as coastal bogs, prairies, and forest edges. Threats to this species include: loss of habitat from development (especially agricultural and residential), plant collection, plant succession, and grazing. Management activities, such as brush removal and fencing, can alleviate the latter two threats, but development, especially on private lands, cannot be controlled. That is why areas such as New River are vitally important in the protection of sensitive species. Since 1995, the BLM has been involved in a project with the Berry Botanic Garden to collect and store seed, propagate plants, and monitor an experimentally introduced population. In 1998, a recovery plan for this species was prepared (Guerrant et al. 1998). During 2003, two new populations of this species were documented. One population is located inside and one outside of the New River ACEC boundaries.

Wolf's evening-primrose

Wolf's evening-primrose (*Oenothera wolfii*) is a federal species of concern, listed threatened by the State of Oregon, and is Bureau sensitive. This biennial species is currently limited to very few remaining populations. It ranges from northern California to Port Orford, Oregon. Most populations contain only a few individuals and are vulnerable to a variety of biotic and abiotic threats. The species forms hybrids when it crosses with the red sepal evening-primrose, a widespread, exotic, ornamental species that has escaped from gardens. In 2004, refuge population of Wolf's evening-primrose was established at New River. New River is located 12 miles north of the farthest north naturally occurring population; however, the ACEC was chosen as a secure site where the species would likely not hybridize with the exotic species.



Wolf's evening-primrose (*Oenothera wolfii*)

Table 1. Special Status Vascular Plant Species Documented (D) or Suspected (S) at New River

Common Name (Scientific Name)	D/S	Federal Status	ORNHIC List¹ and Oregon State Status	BLM Status
Beach saltbush (<i>Atriplex leucophylla</i>)	D		List 3	Tracking Species
California pitcher-plant (<i>Darlingtonia californica</i>)	D		List 4	Tracking Species
Dwarf brodiaea (<i>Brodiaea terrestris</i>)	D		List 2	Assessment Species
Humped bladderwort (<i>Utricularia gibba</i>)	D		List 2	Assessment Species
Northern bog clubmoss (<i>Lycopodiella inundata</i>)	D		List 2	Assessment Species
Oregon timwort (<i>Cicendia quadrangularis</i>)	D		List 2	Assessment Species
Pink sand-verbena (<i>Abronia umbellata</i> ssp. <i>breviflora</i>)	D	Species of Concern	List 1, State Endangered	Bureau Sensitive
Russet cotton-grass (<i>Eriophorum chamissonis</i>)	D		List 2	Assessment Species
Seaside cryptantha (<i>Cryptantha leiocarpa</i>)	D	Species of Concern	List 1	Bureau Sensitive
Seaside gilia (<i>Gilia millefoliata</i>)	D	Species of Concern	List 1	Bureau Sensitive
Silvery phacelia (<i>Phacelia argentea</i>)	D	Species of Concern	List 1, State Threatened	Bureau Sensitive
Swaying bulrush (<i>Schoenoplectus subterminalis</i>)	D		List 2	Assessment Species
Western lily (<i>Lilium occidentale</i>)	D	Federal Endangered	List 1, State Endangered	Bureau Sensitive
Whorled marsh pennywort (<i>Hydrocotyle verticillata</i>)	S		List 2	Assessment Species
Wolf's evening-primrose (<i>Oenothera wolfii</i>)	D	Species of Concern	List 1	Bureau Sensitive
Yellow sand-verbena (<i>Abronia latifolia</i>)	D		List 4	Tracking Species

¹ **Oregon Natural Heritage Information Center (ORNHIC) status:** List 1 – threatened or endangered throughout range; List 2 – threatened or endangered in Oregon but stable elsewhere; List 3 – Review List, more information is needed before status can be determined; List 4 – Watch List, species of concern but not currently threatened or endangered.

Ten special status non-vascular (i.e., lichens, fungi, mosses, hornworts, and liverworts) plant species either occur or are suspected of occurring in the ACEC (Table 2, Oregon Natural Heritage Information Center 2004).

Table 2. Special Status Non-vascular Plant Species Documented (D) or Suspected (S) at New River

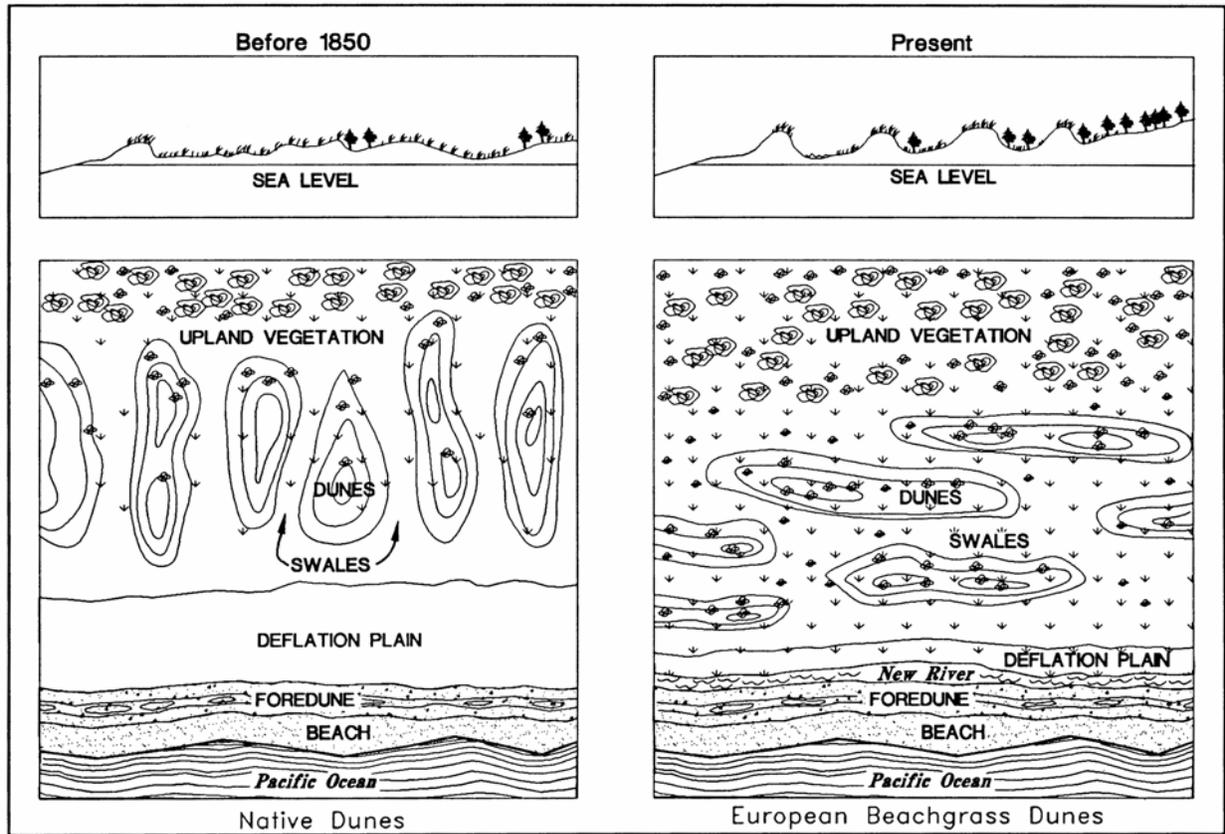
<i>Scientific Name</i>	Group	D or S	ORNHIC List Status¹	BLM Status
<i>Bryoria pseudocapillaris</i>	Lichen	D	List 1	Bureau Sensitive
<i>Bryoria spiralifera</i>	Lichen	S	List 1	Bureau Sensitive
<i>Calypogeia sphagnicola</i>	Liverwort	S	List 2	Assessment Species
<i>Erioderma solediatum</i>	Lichen	S	List 2	Assessment Species
<i>Kurzia makinoana</i>	Liverwort	D	List 2	Assessment Species
<i>Leioderma solediatum</i>	Lichen	S	List 2	Assessment Species
<i>Sulcaria badia</i>	Lichen	S	List 2	Assessment Species
<i>Teloschistes flavicans</i>	Lichen	D	List 2	Assessment Species
<i>Triquetrella californica</i>	Moss	S	List 2	Assessment Species
<i>Vermilacinia cephalota</i> (<i>Niebla cephalota</i>)	Lichen	S	List 3	Tracking Species
¹ Oregon Natural Heritage Information Center (ORNHIC) status: List 1 – threatened or endangered throughout range; List 2 – threatened or endangered in Oregon but stable elsewhere; List 3 – Review List, more information is needed before status can be determined; List 4 – Watch List, species of concern but not currently threatened or endangered.				

Exotic & Noxious Plants

Over 70 exotic or non-native plant species occur at New River. Exotic plants are those that are not indigenous to a given area, occur as a result of introduction, or have escaped and become naturalized. These species did not occur here before the arrival of European culture. Some exotic species are pioneer plants that are normally limited to a single generation before a dense plant cover develops. Other exotic species, like European beach grass, colonize a habitat by vegetative reproduction, often crowding out native species. These species are referred to as invasive species.

Troublesome, invasive species at New River are found in both aquatic and terrestrial habitats. Brazilian waterweed and spiked water-milfoil are two aquatic exotic species that degrade the New River channel, especially during lower stream flows in the summer. These plants displace native vegetation, interfere with normal development of fish and wildlife habitat by the formation of impenetrable mats and decreased water flow, reduce light to other native aquatic vegetation and organisms, and may provide habitat for mosquitoes. They also reduce water quality and levels of dissolved oxygen. European beach grass, Scotch broom, and gorse are the three main terrestrial exotic species that degrade the lands surrounding New River.

Figure 3. Historic and Current Dune Configuration at New River



Local residents of the Bandon area, north of New River, report that the first appearance of European beach grass was during the 1920s when plants washed ashore (Hanneson 1962). Dormant rhizome fragments of this aggressive grass are able to disperse long distances because of their resistance to prolonged immersion in sea water. They can survive at least eight tidal cycles during marine transport (Baye 1990).

European beach grass now covers large expanses of the ACEC between the open sand beach and the river (foredune) and along some parts of the ACEC east of the river as an understory to the forest and woodland communities. European beach grass reduces the native plant richness by as much as half (Barbour and Johnson 1988). It has the ability to out compete native foredune plant species (Barbour et al. 1985) by altering the habitat (Van der Putten 1985 cf Pickart et al. 1990). Blowing sand is trapped, burying other species and precluding resource competition. Unlike other vegetation, European beach grass can withstand sand burial of up to one meter per year. In fact, sand burial promotes beach grass leaf elongation and underground stem development (Ranwell et al. 1959). Runners in the root system are the primary means of beach grass reproduction. Despite high seed production of up to 20,000 seeds per plant per year, most beach grass seedlings die within a few weeks of germination (Huiskes 1979).

Significant differences are seen when comparing areas dominated by European beach grass with those covered by native dune species, such as American dunegrass. Foredunes dominated by European beach grass are steep and give way to a series of dunes and swales parallel to the coast. In contrast, dunes

dominated by American dunegrass rise gradually and lead to dunes and swales perpendicular to the coast (Figure 3, Barbour and Johnson 1988).

Some exotic plant species are designated noxious weeds. These plants have been officially determined to be injurious to public health, agriculture, recreation, wildlife on any public or private property by the state's Noxious Weed Control Program (Oregon Department of Agriculture 2003). The nine noxious weeds at New River include: Scotch broom, common gorse, French broom, Himalayan blackberry (also referred to as Armenian blackberry), English ivy, Canadian thistle, bull thistle, tansy ragwort, and Brazilian waterweed. European beach grass, pampas grass, and silver wattle are not designated noxious at this time, but they also degrade natural plant communities and change wildlife habitats. These species and others may be officially determined to be noxious in future years.

Wildlife

This variety of plant communities described in the preceding section support an abundant wildlife resource. There are an estimated 230 bird (86 documented breeders), 50 mammal, 12 amphibian, and 15 reptile species documented or suspected to occur within the ACEC (Appendix D). The value of this diverse species composition, including special status species, was one of the major reasons for designating the area as an Area of Critical Environmental Concern.

Wildlife Habitat

Wildlife habitat contributes to an animal's life requirements, including: feeding, resting, and breeding. Noteworthy aspects of the habitat values at New River are:

- Coastal location
- Variety, types, and juxtaposition of habitats present
- Uniqueness of plant communities and habitats relative to the increasing amount of development along the Oregon coast
- Limited human use of the area

Five of the major wildlife habitat types at New River include:

Wetland and Riparian Areas

Seasonal and permanent wetlands located along New River are major feeding and resting areas for both resident and migrating wildlife. These wetlands are commonly used by ducks, perching birds, and beaver, and are important habitats for amphibians. Many wetland-dependant wildlife species provided a forage base for predators such as the Peregrine Falcon, Northern Harrier, bobcat, fox, raccoon, and snakes.

Riparian habitat is found along the banks of waterways. Many of these areas are dominated by grasses and sedges, while some are dense with willows. These areas also offer important feeding and nesting habitat for migrating songbirds, shorebirds, and wading birds, and provide the essential life needs for river otter and beaver. They offer hiding cover for some waterfowl and are vital freshwater source for most wildlife species in the area. Mudflats also exist along the margins on the river, especially during low-flow conditions, and are important feeding and resting areas for migratory shorebirds.

Meadows

Meadows near open water habitat, especially those that are fully exposed to the warmth of the sun may be used by nesting western pond turtles. Open meadows are frequented by black-tailed deer, particularly when new grasses emerge.

Sand Dunes and Beaches

In spite of having sparse vegetation, open sand dunes and beaches provide habitat for shorebirds, gulls, and marine mammals. Western Snowy Plovers, for example, nest in the open areas where shells, pebbles, and small debris collect.

Forests/Shrublands

Much of the forested and shrubland habitats within the ACEC are dominated by many species of woody vegetation, primarily shore pine, Sitka spruce, hairy manzanita, evergreen huckleberry, salal, and willows. These forested and shrubland habitats are used by birds for feeding, resting, and breeding. At least 86 bird species are known to nest within the ACEC. These habitats are also used by blacktail deer, porcupine, rabbits, woodrat, and opossum. Other likely inhabitants are the western fence lizard and the western terrestrial garter snake. There is a limited amount of coarse woody debris present in this habitat type that provides important cover for salamanders, rodents, and various invertebrate species.

Open Water

New River's open water habitats support several species of ducks and two subspecies of Canada Goose. Many of these waterfowl nest along the river banks and nearby lakes. Other species of waterfowl use the open waters to forage and rest during their spring and fall migrations. Some species that do not normally frequent the New River area may take refuge in the area during storms. River otter and seals use New River to feed on these fish and aquatic food sources. Western pond turtle, a special status species, have been documented in still water areas. Beaver are common, found mostly in the tributaries to New River, Floras Lake outlet, and the small lakes and other wetlands located on private and public lands.

Ocean and freshwater exchanges occur at low points where high tidal overwashing crosses the foredune. The effect of this action on wildlife populations is unknown, but it may improve feeding conditions for migrating populations.

New River's estuary extends from an area between the outlets of New Lake and Croft Lake to the mouth of the river. This estuarine effect often only occurs from mid-October to the end of July when the mouth of the river is open to ocean flow. A small tidal effect which is most dramatic from Fourmile Creek to the New River mouth provides various sized sand/mudflats for shorebird foraging. Some sand/mudflats are flooded by tides during the fall and spring and are critical feeding sites for large numbers of resident and migratory shorebirds.

Wildlife Species

Birds

Situated along the Pacific Flyway, New River is host to tens of thousands of shorebirds and waterfowl during spring and fall migration, making the area a critical stopover area for many species heading to wintering and breeding grounds. Of the 230 bird species documented or suspected to occur at New River, 86 have been documented, at least once, to breed in the area, and 19 have special species status designation (Table 3). The New River ACEC is designated an Important Bird Area by the American Bird Conservancy, because it is an essential place for protecting rare, declining, or migratory birds.

Mammals

There are 50 mammal species documented or suspected to occur within the New River ACEC. Seven have special status (Table 3). Four bat species are suspected to occur within the area since the ACEC is within their range. Others, such as the harbor seal and sea lions are regularly seen offshore and may occasionally leave their pups on the beach while foraging nearby. Gray whales can be seen on their annual migrations south to calving waters along the Baja Coast, then back to northern waters around Alaska.

Amphibians

Of the twelve amphibian species documented or suspected to occur at New River, four have special status (Table 3). The most common is the red-legged frog, occurring in wetlands throughout the ACEC. The clouded salamander is less common, but has been observed within the boundaries of the ACEC. Two other species, the tailed frog and the southern torrent salamander, have not been observed in the area although range maps indicate the ACEC is within their range.

Reptiles

Fifteen reptile species are documented or suspected to occur at New River. The Northwestern pond turtle has special status since it is listed as a Bureau tracking species. Four sea turtle species may occur on the ocean beach at New River, but due to their extremely infrequent use of the area they are not included in the discussion of special status species of the ACEC. The last evidence of sea turtle use was in 1991, when possible tracks were found on the ocean beach in the southern portion of New River.

Invertebrates

No baseline inventories have been conducted for invertebrates within the New River area.

Special Status Wildlife Species

There are 31 special status wildlife species that have either been documented or are suspected to occur within the New River ACEC (Table 3). This plan update includes twenty-two more special status wildlife species than the original management plan. The new list includes Bureau sensitive, assessment, and tracking species, whereas the original plan only included federal threatened, endangered, or candidate species under the Endangered Species Act. Since the original plan was completed, the special status designation has also changed for a variety of species. Especially noteworthy for New River is the Aleutian Canada Goose, which was de-listed and removed from the Endangered Species List in 2001. It is

now listed as a Bureau sensitive species by the BLM. Some of the more commonly seen special status species are addressed in greater detail below.

Aleutian Canada Goose

Aleutian Canada Goose is now listed as Bureau sensitive. In 2001, this species was removed from the Endangered Species List, because recovered population numbers far exceeded expectations outlined in the recovery plan. The main reasons for recovery of this species include hunting restrictions in key migration and wintering areas and predator management on off-shore islands where the goose breeds. Although this goose is not a local breeder at New River, numbers can reach up to 30,000 as they migrate through the area in spring (March 15 to May 1) and fall (October 15 to November 30). The New Lake outlet area is currently the only identified use area in the ACEC. Most of the resting and foraging activities of these geese occur on the wetlands and pastures of adjacent private lands. The New River area is the last place migrating Aleutian Canada Geese forage before beginning their long flight to the Aleutian Islands.



Aleutian Canada Goose (*Branta canadensis leucopareia*)

Bald Eagle

The Bald Eagle is federally listed as a threatened species. Currently there are no known active bald eagle nests within the New River ACEC, although an active nest is located on private land directly to the east. These eagles frequent the New River area, foraging along the river and often perching on large pieces of driftwood or in trees adjacent to the river corridor. Bald Eagle nests typically average a half a mile away from water in Oregon (USFWS 1986) and suitable habitat is present along this coastal zone. If it is

determined eagles are nesting within the area, management recommendations for limiting disturbance will be applied as per the 1986 Recovery Plan for the Pacific Bald Eagle.

Brown Pelican

Although the Brown Pelican isn't known to nest in Oregon, it is a common post-breeding visitor and is frequently seen foraging and resting in offshore waters as well as resting along the beach and river mouths of New River. During the 1960s and early 1970s, the only viable breeding Brown Pelican population remaining in the U.S. was found in Florida, prompting the government to list it as a federally endangered species. Massive failures at breeding colonies because of collapsed eggs caused by food contamination originating from DDT and other pollutants were determined the cause.

Northwestern Pond Turtle

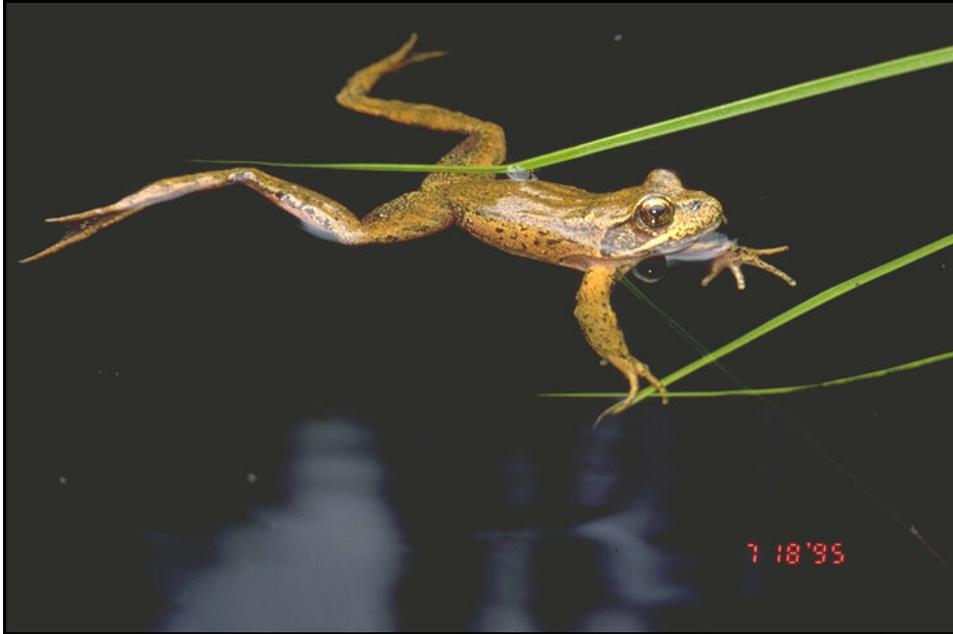
Northwestern pond turtles, previously referred to as Western pond turtles, are listed as a Bureau tracking species. They are the only native freshwater turtle found in Southwest Oregon. The New River area provides good low-gradient river habitat and several wetlands and ponds for the turtle. They have been observed in the vicinity of Floras Creek outlet, Muddy Lake, New River at the mouth of Bono Ditch, and Lost Lake. They can be seen basking on logs above the waters surface.

Peregrine Falcon

Peregrine Falcons were de-listed from the Endangered Species List in 1999, because of population increases throughout its range. Currently they are listed as Bureau sensitive, and as a requirement of de-listing, agencies are monitoring productivity at known breeding sites throughout the State. Peregrine Falcons prey on other bird species such as Band-tailed Pigeons, gulls, waterfowl, and shorebirds. They typically nest on cliffs that are inaccessible to mammals and close to water. There are no known falcon eyries within the ACEC, although peregrines are frequently observed in the New River area year-round.

Red-legged Frog

Red-legged frogs are listed as a Bureau tracking species and are commonly found in wetland areas throughout the New River area. Breeding sites must have little to no water flow, last long enough for metamorphosis to occur, and contain sturdy underwater stems for egg attachment. These habitat requirements are found at Lost Lake, Muddy Lake, and other wet areas throughout the ACEC.



Red-legged frog (*Rana aurora aurora*)

Steller Sea Lion

The Steller sea lion is listed as federally threatened. It and all other marine mammals, such as harbor seals and gray whales, are protected under the Marine Mammal Protection Act of 1972. Stellar sea lions are often seen swimming, foraging, and basking just offshore. Because of the remoteness and lack of public access along isolated stretches of beach at New River, Steller sea lions may occasionally haul out and leave pups on shore when foraging nearby.

Western Snowy Plover

The Western Snowy Plover is a small shorebird occurring year-round at New River that uses the open sand habitats of the ocean shore and coastal dune ecosystem. These areas are critical to the survival of the plover because of their importance as breeding sites. Plovers nest from March to September and nest sites can be easily disturbed by animal predators and human activities. If a brood or nest is destroyed, breeding attempts may continue until a nest is successful or until the end of the breeding season. Plovers were listed as State threatened in 1975, and the Pacific Coast population was federally listed as threatened in 1993. Surveys conducted by the Oregon Department of Fish and Wildlife in 1978 documented twenty-two plovers along the beach from Bandon to Floras Lake in what is now Critical Habitat Unit OR-7. Since 1998, the BLM has restored 2.75 miles (approximately 160 acres) of coastal dune habitat along the foredune for nesting plovers by removing European beach grass. Plovers have consistently used this restored area each year. The best breeding year for the plover since population monitoring began in 1990 was noted in 2003. Along the Oregon Coast a total of 59 young fledged, with seven fledging from the habitat restoration area located on the sand dunes west of New River.

Currently, an estimated 1,900 Western Snowy Plovers breed along the west coast of the United States and at least another 1,900 along the west coast of Baja California. Declines in the breeding population have been specifically documented in Oregon and California. In Oregon, Western Snowy Plovers historically nested at 29 locations on the coast. In 1990, only six nesting colonies remained, representing a 79%

decline in active breeding sites. The loss of breeding sites is attributed to habitat loss and disturbance. Information from the 2003 breeding season estimated Oregon's coastal population at 99 to 102 adult snowy plovers (Castelein et al. 2003).

A detailed account of the taxonomy, ecology, and reproductive characteristics of the Western Snowy Plover can be found in the U.S. Fish and Wildlife Service's published Final Rule in the Federal Register (58 FR 12864) determining Threatened Status for the Pacific Coast Population of the Western Snowy Plover (USFWS 1993).



Western Snowy Plover (*Charadrius alexandrinus nivosus*)

Yuma Bat (*Myotis*)

The Yuma myotis, listed as a Bureau tracking species, is the only bat documented within the ACEC. Four other bat species are also suspected to occur here. Many of these bats are known to inhabit buildings, caves, bridges, and crevices.

Table 3. Special Status Wildlife Species Documented (D) or Suspected (S) at New River

Common Name (<i>Scientific Name</i>)	Federal Status	D/S	Key Habitat/Presence
Birds			
Aleutian Canada Goose (<i>Branta canadensis leucopareia</i>)	BS	D	Wetlands and pastures. Abundant migrant from mid-April to early May; up to 12,000 birds have staged off the rocks at Bandon and up to 30,000 have been seen feeding in the ranch land north of Floras Lake.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	T	D	Uncommon year-round resident. A pair breeds on private land a few miles outside the ACEC.
Band-tailed Pigeon (<i>Columba fasciata</i>)	BT	D	Migrant and possible breeding species.
Bank Swallow (<i>Riparia riparia</i>)	BT	D	Rare migrant not seen every year.
Black Oystercatcher (<i>Haematopus bachmani</i>)	BT	D	Uncommon migrant species.
Black Swift (<i>Cypseloides niger</i>)	BA	D	Rare but regular migrant along New River from mid-May through about mid-June.
Brown Pelican (<i>Pelecanus occidentalis</i>)	E	D	Coastal beaches, off-shore waters, river mouths. Disperses from CA to OR post breeding as early as May; southbound birds can still be seen as late as December some years.
Burrowing Owl (<i>Speotyto cunicularia hypugaea</i>)	BS	S	Rare migrant and possible over-wintering species with only one record in recent years.
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	T	D	Breeds further inland in old growth forests; heard occasionally flying back to sea around sunrise.
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	BT	D	Uncommon and local breeding species; probably nests in the Muddy Lake area.
Oregon Vesper Sparrow (<i>Poocetes gramineus affinis</i>)	BS	D	Coastal grasslands. Discovered singing along New River in 2000 and heard again in 2001 and 2002, probably breeding. Was not observed in 2003.
Peregrine Falcon (<i>Falco peregrinus</i>)	BS	D	Breeds offshore near Port Orford; seen irregularly at New River year-round. Probably most common during shorebird migration.
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	BT	D	Snags, especially large ones, variety of seral stages. Uncommon breeding species and year-round resident.
Purple Martin (<i>Progne subis</i>)	BS	D	Snags in early-seral habitats. Heard once or twice each breeding season; probably breeding somewhere close to New River.
Streaked Horned Lark (<i>Eremophila alpestris strigata</i>)	FC	D	Rare fall migrant that could also over-winter irregularly.
Upland Sandpiper (<i>Bartramia longicauda</i>)	BS	D	One record of a migrating bird seen on the McKenzie Ranch.
Western Bluebird (<i>Sialia mexicana</i>)	BT	D	Snags in early-seral habitats. Rare migrant; nests in open areas on the Wahl Ranch adjacent to Cape Blanco where nest boxes have been provided.
Western Snowy Plover (<i>Charadrius alexandrinus nivosus</i>)	T	D	Coastal beaches, dunes, river mouths. A small breeding population exists in the open sand area on the foredune.

Common Name (Scientific Name)	Federal Status	D/S	Key Habitat/Presence
White-tailed Kite (<i>Elanus leucurus</i>)	BA	D	Pastures, open grasslands. Winters and possibly breeds in the New River area.
Mammals			
American marten (<i>Martes Americana</i>)	BT	D	Late-seral forests, logs, and snags.
Long-eared myotis (<i>Myotis evotis</i>)	BT	S	Snags, bark, rock crevices, caves, and buildings.
Long-legged myotis (<i>Myotis volans</i>)	BT	S	Snags, bark, caves, rock crevices, buildings, and bridges.
Silver-haired bat (<i>Lasionycteris noctivagans</i>)	BT	S	Snags, bark, caves, rock crevices, and buildings.
Steller sea lion (<i>Eumetopias jubatus</i>)	T	D	Off-shore coastal waters.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	BS	S	Caves, rock crevices, buildings, and bridges.
Yuma myotis (<i>Myotis yumanensis</i>)	BT	D	Caves, buildings, bridges, and cavities.
Amphibians			
Clouded salamander (<i>Aneides ferreus</i>)	BT	D	Late-seral forests; large, class-3 down logs and snags.
Red-legged frog (<i>Rana aurora aurora</i>)	BT	D	Ponds, marshes, slow-moving streams. Upland generalist during non-breeding.
Southern torrent salamander (<i>Rhyacotriton variegates</i>)	BT	S	Seeps and cold, clear, small streams.
Tailed frog (<i>Ascaphus truei</i>)	BT	S	Cold, clear streams and rivers.
Reptiles			
Northwestern pond turtle (<i>Clemmys marmorata marmorata</i>)	BS	D	Lakes, ponds, and slow moving rivers, and creeks.
Federal Status: E=Endangered, T=Threatened, FC=Federal Candidate, BS=Bureau Sensitive, BA=Bureau Assessment, BT=Bureau Tracking.			

Exotic Animals

Several exotic or non-native animals influence native wildlife populations in the New River area. This influence is usually negative, because of direct competition for food and other resources, as well as predation of young. Non-native red fox eat snowy plover eggs and chicks; bullfrogs and large mouth bass eat salamanders, juvenile waterfowl, western pond turtles, salmon, cutthroat trout, and other frogs. These three predators are found in and around most of New River's freshwater wetlands and lakes, including Muddy and Croft Lakes.

Native song birds and their young are prone to predation and nest destruction by many other native wildlife species. However, in addition to these risks, starlings and house sparrows, both introduced species, successfully compete with songbirds for nesting sites and food resources. Feral cats are present in the area and are known to significantly reduce resident and migratory songbird populations. Opossums

and feral cats take a heavy toll on ground-nesting birds such as the Western Snowy Plover, California Quail, and Killdeer.

Fisheries

The New River basin contains a diverse array of aquatic habitats and fish species (Table 4). New River and its tributary lakes and streams are home to at least five species of anadromous fish and several other freshwater and marine fish species. Although the majority of these species are native to the region, some including largemouth bass and rainbow trout were introduced to enhance recreational fishing and have negatively impacted native fish populations.

Just prior to the establishment of the New River system, the majority of smaller streams and lake outlets in the area drained directly into the Pacific Ocean. Based upon the relative small size of these drainages, it is not likely that there were large amounts of estuarine or freshwater lagoon habitats associated with them. The estimated combined total area of lagoon habitat provided by these individual drainages was less than 20 acres, based on aerial photo interpretation, not including distinct lake habitats.

With the development of New River, this situation has dramatically changed. Conservative estimates indicate that New River currently contains over 100 acres of freshwater lagoon habitat, not counting distinct lake habitats. This is a substantial increase in the amount of rearing habitat available for salmonids, and may represent a potentially substantial increase in the number of juvenile fish surviving to the smolt stage (time of ocean entrance). Recent studies have indicated that estuarine habitat plays a much more important role in juvenile salmonid survival than previously thought (Cederholm et al. 2000, Miller and Sadro 2003).

Special Status Fish Species

While there is a greater availability of aquatic habitat in the New River area, the status of some fish populations are of concern. In particular, coho salmon populations in the New River system are severely depressed from historic levels. Coho salmon within the Oregon Coast Evolutionarily Significant Unit (ESU) were federally listed as a threatened species in 1998, under the Endangered Species Act. This ESU includes all naturally spawned populations of coho salmon in Oregon coastal streams south of the Columbia River and north of Cape Blanco. Oregon Coast steelhead within this ESU are designated as a candidate species due to concerns over specific risk factors.

South Coast fall run stocks of Chinook, south of Bandon, and coho salmon from New River south to California are listed as state sensitive by the Oregon Department of Fish and Wildlife (ODFW 1992). State sensitive is defined as a species for which listing as threatened or endangered is pending if immediate conservation actions are not taken. Pacific lamprey, coastal cutthroat trout, and coastal steelhead are listed as vulnerable by ODFW. Vulnerable is defined as a species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring.

Chinook, sea-run cutthroat, and steelhead populations in the New River system may be in somewhat better condition than in other southern Oregon Coast systems. However, there is little scientific data available from the New River and Floras Creek system from which to base strong conclusions. The fact that several distinct, and formerly separate, 4th and 5th order drainages now enter the New River system further complicates the task of evaluating the health of individual fish populations.

Table 4. Fish Species Documented (D) or Suspected (S) in New River

Common Name (Scientific Name)	D or S	Habitat¹	Duration
Bay pipefish (<i>Sygnathus leptorhynchus</i>)	D	E, M	Intermittent
Bluegill (<i>Lepomis macrochirus</i>)	S	Fl	All year
Brown bullhead (<i>Ameiurus nebulosus</i>)	S	Fl	All year
Chinook salmon (<i>Oncorhynchus tsawyscha</i>)	D	Fs, Fl, E, M	All year
Coho salmon ² (<i>Oncorhynchus kisutch</i>)	D	Fs, Fl, E, M	All year
Cutthroat trout ³ (<i>Oncorhynchus clarkia</i>)	D	Fs, Fl, E, M	All year
Largemouth bass (<i>Micropterus salmoides</i>)	D	Fs, Fl	All year
Largescale sucker (<i>Catostomus macrocheilus</i>)	D	Fs, Fl	All year
Pacific lamprey (<i>Lampetra tridentate</i>)	D	Fs, Fl, E, M	All year
Prickly sculpin (<i>Cottus asper</i>)	D	Fs, Fl	All year
Rainbow trout (<i>Oncorhynchus mykiss</i>)	D	Fs, Fl	All year
Shiner perch (<i>Cymatogaster aggregate</i>)	D	E, M	Intermittent
Staghorn sculpin (<i>Leptocottus armatus</i>)	D	E, M	All year
Starry flounder (<i>Platichthys stellatus</i>)	D	E, M	All year
Steelhead trout ³ (<i>Oncorhynchus mykiss</i>)	D	Fs, Fl, E, M	All year
Threespine stickleback (<i>Gasterosteus aculeatus</i>)	D	E, Fl	All year
Western brook lamprey (<i>Lampetra richardsoni</i>)	D	Fs, Fl	All year
¹ Habitat: Fs – freshwater stream, Fl – freshwater lake, E – estuarine, M – marine ² Oregon Coast coho salmon are listed as Threatened under the Endangered Species Act. ³ Cutthroat and steelhead trout within the Oregon Coast ESU are currently listed as Candidate species for Federal listing under the Endangered Species Act.			

Fishing Use

Use of the New River area has generally been low and predominated by the local fishing public, due to its isolation and limited access. From 1985 to 1997, harvest of fall Chinook in Floras Creek and New River ranged from 54 to 177 fish caught. However, fishing use is expected to increase as the southern Oregon Coast becomes more populated and people become more aware of the New River fishery. Predicting how an increase in fishing may impact the salmon fishery over time is difficult due to constant environmental change and the lack of adequate scientific data in the New River basin.



Juvenile coho salmon, captured and released during monitoring on New River.

Fish Habitat

Spawning and rearing habitat for salmon has declined throughout the New River basin (ODFW 1989). Contributing factors include: the draining of wetlands; straightening of stream channels; removal of riparian vegetation and large woody material; increased sediment yields from timber harvesting activities along tributary streams; introduction of non-native fish species to freshwater lakes; introduction of exotic Brazilian waterweed and spiked water-milfoil; and low summer flows and high water temperatures brought on by periods of drought and/or agricultural water diversion.

Lake and stream features in the New River area provide salmon with rearing habitat including deep pools and off-channel areas in nursery streams, lakes, ponds, and open wetlands. These habitats are especially important in providing slow moving water and abundant cover for young fish to survive winter floods. Historically these habitats were more abundant; however, juvenile salmon continue to use such habitats, especially in New Lake, Croft Lake, and Floras Lake throughout the winter before continuing into New River for their seaward migration. The predominant use by salmonids is likely for migration and rearing purposes, not spawning, due to New River's sand substrate.

In the early spring (several weeks to months after emerging from the gravel) young Chinook salmon begin migrating down Floras Creek to New River. Chinook smolts (juvenile fish that have begun their physiological adaptation to saltwater) rear throughout New River and its estuary during the summer and enter the ocean between June and October. Although spawning habitat for Chinook salmon has been reduced in Floras Creek, the numbers of spawning Chinook have fluctuated widely over the years. Rearing habitat for juveniles has expanded as a result of the formation and expansion of New River.

From an aquatic habitat perspective, the New River system is currently considered to be of fair quality overall. During the winter months, the flooded wetlands and terraces of New River likely serve as prime

over-wintering habitat for juvenile coho salmon. During low-flow conditions, the nature of the aquatic habitat found along this linear river system changes fairly frequently. In some areas the habitat takes on the characteristics of a lentic or lake system; while in other areas the habitat is more representative of a lotic or moving stream system.

A deeper, more confined river channel would have a beneficial effect on rearing habitat by reducing summer high water temperatures that can be lethal for salmon and steelhead and by providing them with more refuge from predators. Breaching in the northern part of New River should improve this condition, flushing sediment out of the shallow portions of the river that have stranded juvenile salmonids when a southern breach occurred.

For more information about the New River fishery, see Appendix E, Fish Habitat Use and Life History.

Cultural Resources

New River has a rich and varied cultural history. Fifteen prehistoric sites have been discovered on or adjacent to the New River ACEC, and ethnographic records suggest other unrecorded sites are also present. Historic resources include the cranberry bogs and the remains of the Cox homestead southwest of New Lake.

Two distinct periods of Native American presence are represented at New River. The oldest dates from about 3,000 to 8,000 years ago, while the more recent occupation probably dates from 500 to 1850 A.D. Our knowledge of the prehistoric record is fragmentary, so the apparent gap from 3,000 to 1,450 years ago may be based on inadequate data rather than an accurate reflection of an absence of human use. None of the older sites have been scientifically excavated. The Strain Site, a late period occupation site near the outlet of Floras Lake, was excavated by the University of Oregon in 1959.

Early Period (6,000 to 1,000 B.C.)

The early sites are found in association with Blacklock Series soils, which underlie much of the New River area. This deposit contains a large amount of organic debris and charcoal, and probably supported a dense spruce forest at one time. Pollen studies at Garrison Lake to the south and Tahkenitch Lake to the north suggest that much of today's coastal plain was a shallow estuary 5,000 years ago. Early sites probably border these ancient estuaries, as shown by the presence of these sites on almost all of the low ridges surrounding the New River basin.

Early sites at New River are characterized by the presence of large leaf-shaped and broad-stemmed projectile points that were probably used for hunting large game animals such as deer and elk. Large side-scrapers and edge-ground cobbles used to process hides also are found at these early sites.

Perhaps the most important early site is near the outlet of Croft Lake where numerous artifacts were found among the stumps of an ancient spruce forest. This site covers several acres, but only the outer edge eroding into New River is readily apparent. Jack Storm, a long-time area resident, bulldozed several spots between Muddy Lake and New River from 1950 to 1970 and uncovered a large number of broad-stemmed projectile points which he sold to local collectors.

Evidence found at New River includes fire-cracked rock, lithic debris (flakes and chips), broken jasper nodules, and unfinished and finished artifacts. These suggest that the area was probably used for salmon fishing, big game hunting, huckleberry picking, tool manufacturing, and shellfish gathering.

Some local collectors claim that before European beach grass stabilized the dunes lithic debris and projectile points were evident across most of the broad terraces bordering New River's east side from Fourmile Creek to Floras Lake. Today, these sites are covered with forests or shore pine, but surface disturbance may reveal their location.



Artistic representation of Native American life on New River. Artwork by Peggy O'Neal.

Qua-To-Mah and Lower Coquille (500 to 1850 A.D.)

During the last 1,500 years, the Gunther Tradition projectile point style became dominant at New River. Where earlier cultures, termed the Glade Tradition, had relied on thrusting spears and darts hurled with atlatls to kill big game, the Gunther Tradition people manufactured thin, barbed points. They relied on a broad spectrum of economic resources, with an emphasis on fish and shellfish. Other artifacts characteristic of this occupation include oval-shaped knives used to butcher fish, hopper mortar bases used to process plant products, and large quantities of fire-cracked rock from camp fires.

The Qua-To-Mah and Lower Coquille people probably occupied the New River drainage for most of this period. Descendants of the Quo-To-Mah today are members of the Confederated Tribes of Siletz Indians of Oregon, while descendants of the Lower Coquille Indians are members of the Coquille Indian Tribe. Well before New River formed, their villages were located near the outlets of Fourmile Creek, New Lake, and the lower end of Floras Creek. Shell middens (trash heaps) at these points developed from a native diet heavily reliant on mussels and other shellfish. These sites were quite visible and most have been destroyed by local collectors.



Hopper mortar base and pestle used by Native Americans to process seeds at New River.

Ethnographic records indicate that the Qua-To-Mah and Lower Coquille lived in semi-permanent villages on elevated terraces near the confluence of streams with the ocean. They traveled by canoe to reefs near Blacklock Point to collect shellfish when the ocean was calm. During the summer, camas and brodiaea bulbs were gathered in nearby meadows. Salmon were speared, netted, or taken in traps during fall migrations up the shallow streams that now feed New River. The men of the village fished and hunted along the marsh edges while the women collected seeds and berries from local plants.

The Strain Site, where both Native American and Euro-American artifacts were found, is indicative of the recent prehistoric period. The remains of five rectangular plank houses were found atop a low knoll near Floras Lake outlet. Artifacts found at the site indicate that village residents relied primarily upon deer and elk, with fish and shellfish of secondary importance. This contrasts with the focus of many sites from this time, which appear more oriented towards marine rather than terrestrial resources.

Perhaps the most important value of archaeological sites is what they reveal about ancient environments and the plants and animals found there. Area swamps must have been a rich food source to support so many prehistoric camps and villages. Hunting mammals (not generally considered to be of particular importance compared to fishing in typical younger coastal sites) received specialized emphasis at New River because of the availability of deer and elk along marsh edges. Closer examination of the faunal record would probably reveal the additional importance of waterfowl and shorebird hunting here.

Many of the prehistoric sites are extensive. Some cases are as large as two acres. Discussions with local collectors indicate that some of the sites are deep, well-stratified middens with features associated with long-term use.

Some of these sites may be eligible for the National Register of Historic Places. Subsurface testing will be needed to ascertain the level of significance. It may be desirable to nominate all the sites as a historic district.

Recent Period (1850 to Present)

The New River historic sites probably are not as significant as the prehistoric ones. All that remains of the Cox homestead is a concrete foundation, scattered metal and glass debris, and some ornamental plants. The cranberry bogs, built around 1915, may be the most significant of the historic resources. These are some of the oldest bogs in the area, and contain the Stankevich variety of cranberry, which was developed in the New River area by crossing wild and domesticated cranberry vines. As a unique rural historic landscape, these bogs may be eligible for the National Register of Historic Places.

The prehistoric sites in the ACEC are fairly well-protected at the present time, thanks to a cover of stabilized sand dunes and a dense forest of shore pine. Some of the sites along the shoreline are suffering from slight wind and wave erosion, but as the riparian vegetation along the river improves, this threat may diminish. At one time, collection of surface artifacts and subsurface digging in archaeological sites was a serious problem at New River. Today, this is not a problem, largely because the sites are obscured by surface vegetation and the dunes.

Native American Concerns

The aboriginal territory of two federally-recognized Indian Tribes encompasses the New River area. Both the Confederated Tribes of Siletz Indians and the Coquille Indian Tribe are interested in protecting cultural resources within the ACEC. The BLM and Coquille Indian Tribe have partnered together in projects aimed at developing a more complete understanding of the area's paleo-environmental and cultural history.

Recreation

Regional Recreation Trends

Outdoor Recreation Demand in the Region

Every five years, the Oregon Parks and Recreation Department conducts a statewide assessment of outdoor recreation demand, needs, and trends. The document that describes the results of this assessment is termed the Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP). The 2003-2007 Oregon SCORP offers the best understanding of outdoor recreation demand within the state on a region by region basis. The SCORP is the product of extensive phone and mail-in surveys of Oregon households as well as out-of-state residents from Washington, Idaho, and California.

The SCORP presents a number of insights that may have relevance to the management of outdoor recreation at New River. According to survey results, New River offers seven of the ten highest demand activities statewide. In rank order these are: (1) running/walking for exercise; (2) walking for pleasure; (3) bird watching; (4) nature/wildlife observation; (5) sightseeing; (9) bicycling; and (10) ocean beach activities. The SCORP also identifies recreation priorities for the state on a region by region basis. Within Region 4, the South Coast, one of the top three recreation management priorities is to conserve coastal areas and preserve coastal access for recreation.

Regional Significance of Recreation at New River

Outdoor recreation opportunities provided at New River have been featured in a wide variety of guidebooks and publications highlighting birding, hiking, kayaking, and general touring opportunities in the region. New River was also featured in the recently published Smithsonian guidebook, *Beyond the National Parks, a Recreation Guide to Public Lands in the West*.

Nature-based tourism is one of the fastest growing segments of the global tourism market. Not surprisingly, New River has been included in several regional nature-based tourism plans and programs including:

- The Oregon Coastal Environments Awareness Network (OCEAN) links New River with South Slough, Dean Creek, and the Oregon Dunes National Recreation Area as environmental learning destinations.
- The Curry County Sustainable Nature-Based Tourism Project produced a *Plan for a New Economic Sector of Nature-Based Tourism in Curry County*.
- The Coos Regional Trail Partnership, *2000 Trail Plan*.

All of these factors are having an affect on the overall number of visitors choosing to visit New River and the shifts in recreation activity preferences that have occurred at New River over the last ten years.

Recreation Management at New River

Visual Resource Management

While visual resources are not solely a recreation resource, they are a significant aspect of the overall physical setting that affects recreation opportunities and experiences. The Coos Bay District Resource Management Plan (RMP) identifies the visual resources at New River with a Visual Resource Management (VRM) classification of Class II on the river and the ocean shore, and Class III within the remaining ACEC interior. The objectives for managing these visual resources are:

- VRM Class II allows for low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer.
- VRM Class III allows for moderate levels of change to the characteristic landscape and management activities that may attract attention but should not dominate the view of the casual observer.
- In both VRM Class II and III areas, changes should repeat the basic elements of form, line, color, texture, and scale found in the predominant natural features of the characteristic landscape.

Special Recreation Management Area

In 1989, the New River ACEC was identified as a Special Recreation Management Area (SRMA) (USDI BLM 1989), then later designated as such in the Coos Bay District RMP (1995). SRMA is defined as an area where a commitment has been made to provide specific recreation activity and experience opportunities. These areas usually require a high level of investment and/or management. This designation acknowledges BLM's commitment to provide specific recreation activities and experience opportunities at New River in a manner that is compatible with protecting the natural and cultural resource values of the ACEC.

Since 1995, BLM has developed a number of enhancements to support and manage recreation use at New River. This infrastructure includes:

- The Ellen Warring Learning Center
- Five miles of trails that includes a half-mile of wheel chair accessible trail, footbridges and boardwalks, and a wildlife viewing platform
- Boat launches, parking areas, and picnic tables
- Interpretive wayside exhibits
- Public restrooms

New River has been further identified by the BLM as a Watchable Wildlife site due to the ACEC's outstanding opportunities to view some of the over 230 bird species, 50 mammal species, 12 amphibian species, and 15 reptile species.

The Coos Bay District Resource Management Plan identifies several general recreation management objectives that are pertinent to visitor use management at New River. These are:

- Manage scenic, natural, and cultural resources to enhance visitor experience expectations and to satisfy public land users.
- Support locally-sponsored tourism initiatives and community economic strategies by providing recreation projects and programs that benefit both short- and long-term implementation.
- Manage off-highway vehicle (OHV) use on BLM-administered land to protect natural resources, provide visitor safety, and minimize conflicts among various users.
- Enhance recreation opportunities provided by existing and proposed Watchable Wildlife areas and National Backcountry Byways.
- Continue to provide non-motorized recreation opportunities and create additional opportunities where consistent with other management objectives.

Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) provides a conceptual framework for inventorying, planning, and managing the recreation resource and its use. It is based on the recognition that people differ in their needs and in the experiences they desire; and further, that different site conditions yield different recreation experiences. ROS is used to categorize the landscape into a range of recreation opportunity classes based on the physical, social, and managerial settings inherent in the landscape. The standard ROS framework includes six opportunity classes ranging from "primitive" at one end of the spectrum to "urban" at the other. Each ROS class provides a different type of recreation or visitor experience opportunity.

By applying ROS to a geographic area, recreation experience opportunities can be managed in ways that either maintain the current physical, social, and managerial settings, or alter them to provide a different type of recreation experience. In addition, ROS provides a means to clearly define the setting for which an area is being managed as well as a basis for monitoring so that management adjustments can be made to protect or preserve the setting if necessary.

ROS provides a useful tool for planning and managing visitor use at the New River ACEC. However, the ROS concept was originally developed for application to relatively large geographic spaces (e.g., national forests and wilderness areas). Accordingly, applying the standard ROS framework to New River presents a number of challenges due to the ACEC's relatively small size and narrow shape, management practices on adjacent private lands, and the diverse mix of state agency jurisdictions. Given these conditions, the standard ROS framework would likely yield recreation opportunity classes throughout the ACEC that are closer to the "urban" end of the spectrum. These classes would be inconsistent with the kind of recreation experiences supported at New River under the original ACEC management plan. For the purposes of this plan update, the standard ROS framework and process have been adapted to better suit BLM's management direction at New River.

The ROS standards developed to guide the management of different recreation settings are useful tools in arresting the potential for cumulative fragmentation of the ACEC over time. Therefore, managing New River under a more primitive opportunity classification would provide a framework for more consistent management between the BLM's recreation, natural, and cultural resource objectives. Several other factors that push the relatively small acreage at New River toward the more primitive end of the spectrum include:

- In some areas, dense coastal vegetation absorbs most of the sights and sounds of human activity within a short distance.
- Large tracts of rural private land on the east side of the ACEC block public access and thereby limit the sights and sounds of human activity which increases the perceived remoteness of BLM land. At the same time, management practices and uses on the adjacent private lands could also interfere with the opportunity to obtain a more "primitive" experience at some times and places.
- New River properties have been acquired by the BLM to maintain, enhance, and restore the ACEC to a high degree of naturalness which would be comparable to a semi-primitive non-motorized setting.
- The Coos Bay District RMP specifies that this area will be managed in a manner that protects the area's natural and cultural values as evidenced by its designation as an ACEC, classification as VRM Class II-III, designation as an area that limits use of OHVs, and recognition as an SRMA due to outstanding natural and scenic values.

Based on these factors, an informal inventory of the New River ACEC has resulted in two distinct ROS inventory classes – roaded natural and the semi-primitive non-motorized. These settings aid the BLM in the management of the ACEC by establishing a set of conceptual controls for guiding visitor use. The following describes the characteristics of each setting:

Roaded Natural

The areas of the ACEC that are managed in a manner consistent with a roaded natural setting include:

- General area surrounding the Storm Ranch administrative complex
- Roads, trailheads, and parking areas
- Wheelchair accessible trail to the Muddy Lake viewing platform (closed to motorized vehicles)
- Immediate vicinity of the main public access points at Floras Lake, Fourmile Creek, and Lost Lake

The characteristics common to this type of recreation setting are:

- Opportunity to get away from others, but with easy access
- Some self reliance in the use of outdoor equipment
- Feeling of independence and freedom with little challenge or risk
- Substantially modified environment (e.g., roads, landscaping, structures)
- Moderate evidence of other users on roads and trails
- Frequency of contact is moderate to high in developed sites
- Regimentation and controls obvious, but largely in harmony with the surrounding environment (e.g., gated roads, barriers, fences, regulatory signs)
- Conventional motorized access
- Maintain recreation sites and immediate foreground in a natural appearing state.

The management objectives for these roaded natural areas are intended to provide a setting that is natural appearing while providing easy access to recreation opportunities. These objectives include the following:

- Rustic facilities providing some comfort for the user as well as site protection
- Use native materials, but with more refinement in design (synthetic materials should not be evident)
- Moderate site modification for facilities that are compatible with the overall resource management objectives for the area
- Interpretation through simple wayside exhibits (use native-like materials with some refinement in design) with some interpretation by agency staff
- Access for people with disabilities is of only moderate challenge

Semi-Primitive Non-Motorized

A majority of the ACEC is managed as a semi-primitive non-motorized setting. This setting includes all areas of the ACEC not designated as roaded natural. The characteristics common to this type of recreation setting are:

- Higher probability of experiencing solitude, closeness to nature, tranquility, self reliance, challenge and risk
- Area is characterized by a predominantly unmodified natural environment
- Low interaction between users and some evidence of other users
- On site controls and restrictions may be present, but are subtle
- Access and travel is on non-motorized trails, some cross country travel

The management objectives for these non-motorized semi-primitive areas throughout the ACEC are intended to provide a setting with a high degree of naturalness while preserving an outdoor recreation opportunity that emphasizes self reliance, challenge, and solitude. These objectives include the following:

- Facilities are provided for the protection of resource values and the safety of users only; no evidence of synthetic materials, use of undimensioned native materials only
- Interpretation exists through self discovery; some use of maps, brochures, and guidebooks; no on-site facilities
- Access for people with disabilities is difficult and challenging
- Spacing of groups may be formalized to disperse use and limit contacts between groups

Recreation Use at New River

Historically, most of the lands along New River were in private ownership and general public recreational use was limited. Recreation centered on consumptive uses such as fishing and hunting, and most of the users were local residents who knew the private landowners and had permission for access. When BLM lands in the area were designated an ACEC in the late 1980s and general public access became available in the 1990s, this recreational use pattern began to change.

There are now six general public use areas in the New River ACEC and non-motorized, low-impact recreational activities are becoming more popular in these areas. Two of these areas, Storm Ranch and Floras Lake, receive moderate to high levels of use, while the other sites have less visitation. The following describes the recreational setting and use patterns at Storm Ranch, Floras Lake, Fourmile Creek, Lost Lake, and dispersed recreational use along New River and the ocean beach:

Storm Ranch

Past Recreation Use under Private Ownership

When Jack and Ruth Storm owned Storm Ranch (1939-1977) they generated a portion of their income from recreation. They allowed visitors onto their land for a day-use fee of \$1.00 per vehicle in the 1950s and 1960s and \$2.00 per vehicle in the 1970s. Long-time residents report that the fishing was so good that it was not uncommon to see dozens of anglers catching fish each day. Storm Ranch was locally famous for its fishing of coho and Chinook salmon, sea-run cutthroat trout, and surfperch (also called pink-tail or pink-fin perch). Some camping did occur at Storm Ranch during fishing season. Local people as well as out-of-towners were provided camping areas with picnic tables for a nominal fee.

To maintain the fishery, Jack Storm breached the foredune every fall at or near the present day boat launch. The old breach sites are still evident today where the ocean occasionally overwashes to the river during periods of high surf. The clay shelf bordering the river on the east side allowed deep holes to form where the salmon would hide. Mr. Storm monitored the fishery daily and occasionally shot seals which were attracted to the rich food source.

Waterfowl hunting was another recreational use, but minor compared to the fishing interest. Hunting occurred south of the Croft Lake outlet; and during the 1950s and 1960s, a duck hunting club was formed near New Lake. Jack Storm did not encourage any hunting on his property, but did not mind those who hunted along New River south of Croft Lake outlet.

Another popular recreational use was glass float hunting. Glass floats from Japanese fishing vessels would wash ashore near Storm Ranch. Glass float hunters paid their day-use fee to Jack Storm and boated across to the foredune, which was then much flatter and narrower than it is today.

It is estimated that approximately 3,000 visitors came to New River each year during the time the Storms owned the ranch. In 1977, the ranch was sold and over the next 14 years it passed through two different ownerships: the Allens and the Wilsons. During this time, access to New River through the ranch was limited and resulted in reduced recreational opportunities for the public.



Original Storm Ranch House

Present Recreation Use under BLM Ownership

When BLM acquired the ranch in 1991, visitor use returned to a similar level as when owned by the Storms. Fishing interest continues to be high among local residents, although the fishery has degraded somewhat due to increased sedimentation and shallowing of the river in the Storm Ranch vicinity. Other recreational uses have become more popular, including: picnicking, canoeing and kayaking, hiking, bird watching, nature photography, horseback riding, bicycling, and general sightseeing. Joggers are sometimes seen using the trails as well.

In addition to providing low-impact recreational opportunities, the Ellen Warring Learning Center was constructed at the Storm Ranch portion of the ACEC to provide a focal point for interpretation and educational activities for the public.

In May 2003, a directional sign to the Storm Ranch portion of the ACEC was installed on Highway 101, which has resulted in a moderate increase in recreational activities. In 2003-2004, the site averaged about 10 visitors per day during the winter and spring, and 25 visitors per day during the summer and fall. During the fishing season in late fall, visitation can peak at around 40 persons in a day. Currently, approximately 5,000 people visit Storm Ranch each year. For more information about recent visitor-use trends by specific recreational activities at Storm Ranch, see the graphs located in Appendix H.

Figure 4 shows how recreation use at the Storm Ranch portion of New River has shifted over the years from more consumptive uses to lower impact activities. Historic visitor use data is based on monitoring results during the 1991-1992 seasons when the ranch was first acquired by the BLM. Current visitor-use data is based on BLM monitoring results during the 2001-2004 seasons.

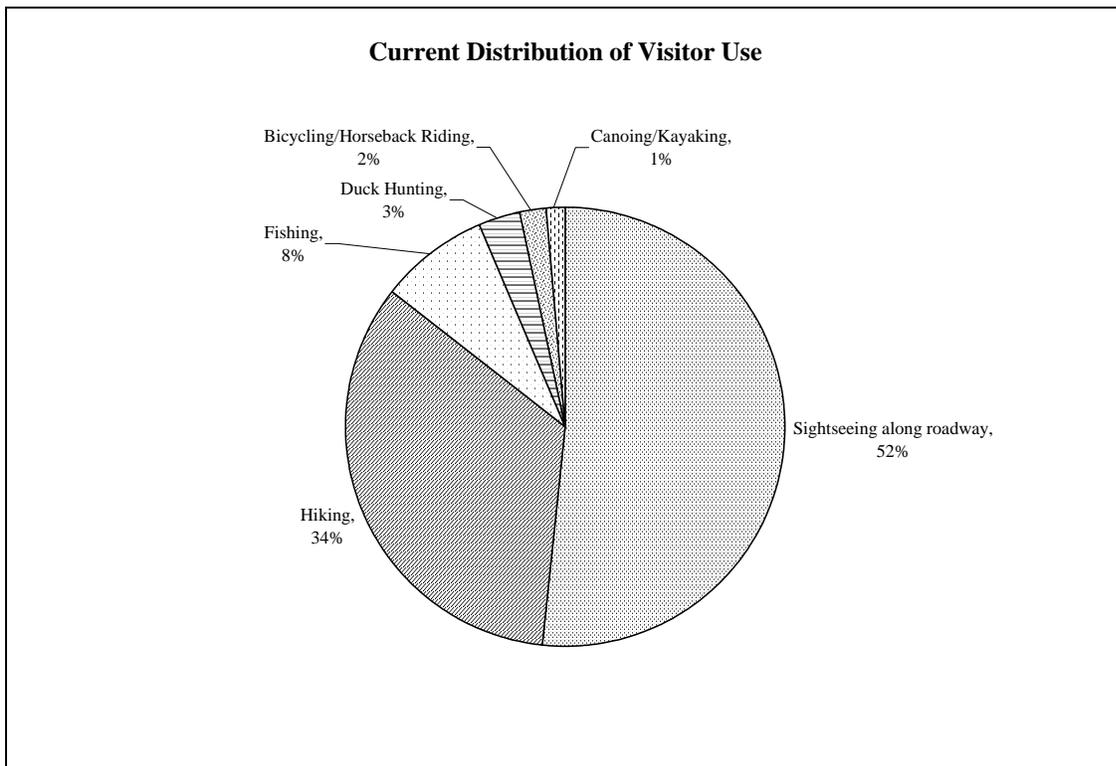
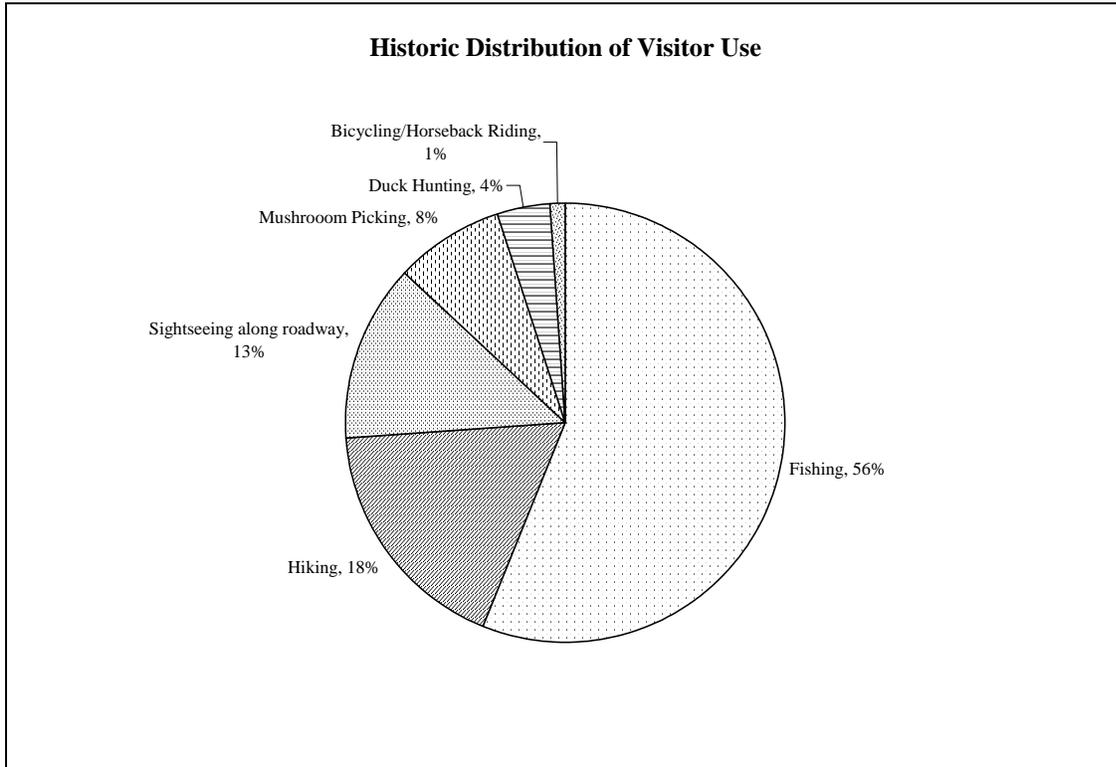
The historic level of fishing use may be lower than Figure 4a depicts, since many fishermen visit the river several times to observe the conditions before they actually decide to fish. BLM currently groups this type of user with 'sightseers,' whereas they may not have been grouped this way in the past.

Mushroom picking is not included in Figure 4b, since it is now an illegal activity due to resource concerns. (Collection of special forest products west of Highway 101 is not permitted on any lands managed by the BLM.) Canoeing and kayaking was not included in Figure 4a, since it has only recently become more popular.



Ellen Warring Learning Center, designed similarly to the original Storm Ranch house.

Figure 4a and 4b. Changes in Recreational Use at Storm Ranch



Floras Lake

The BLM land on the west and north sides of Floras Lake offers many of the same recreational opportunities as Storm Ranch. In addition, windsurfers and kite-surfers launch from the lake and occasionally the ocean shore. Since the replacement of the old footbridge across the lake outlet in 2001 visitor use has averaged approximately 30 people per day during the summer and about 12 people per day during the winter. In 2003, the Floras Lake portion of the ACEC averaged about 7,000 visitors.



Floras Lake, looking north towards New River.

Fourmile Creek

Another public access point to the ACEC is located at Lower Fourmile Road. From a small gravel parking area, a semi-primitive trail crosses a seasonally wet meadow where visitors can proceed on foot to New River. This short hike provides an opportunity to portage a canoe or kayak to the river. Private property surrounds this small, isolated parcel, and visitors are asked to respect the privacy of the residents. Visitor use data is not currently available for this area, but it appears the site is only occasionally used by local residents. There are no signs directing the general public to this site from Highway 101.

Lost Lake

The northernmost public access point to the ACEC is located at Lost Lake. This area can be reached via McTimmons Road to Woods Way. A foot trail begins at a parking lot on the east side of the lake. The trail borders the southern edge of the lake and leads to a series of large sand dunes. Traversing the dunes will lead visitors to New River. The Lost Lake portion of the ACEC is bordered to the west by Bandon

State Park and Coos County land. All other lands surrounding Lost Lake are privately owned. Visitors are asked to respect the privacy of these residents. Visitor use data is not currently available for this area, but it appears the site is only occasionally used by local residents. There are no signs directing the general public to this site from Highway 101.



Lost Lake

New River

A 1987 Oregon State Parks and Recreation Department study, *The Recreational Values on Oregon Rivers*, identified New River as having outstanding values for river recreation purposes, primarily due to its excellent fishery. The BLM evaluated New River in 1990 and found it to be eligible for inclusion in the National Wild & Scenic Rivers System as a Scenic River. The BLM based this eligibility finding on the river's free flowing condition, as well as its remarkable scenic and ecological values. However, New River was found not to be suitable for designation as a Scenic River in the Coos Bay District RMP, because not enough river shoreline was in federal ownership (approximately 40%). Since then, the amount of river shoreline in federal ownership has increased to 60% through land acquisitions, making it possible for future inclusion into the National Wild & Scenic Rivers System under current BLM policy.

Non-motorized boating on New River is increasing in popularity. Boating, especially canoeing and kayaking, affords an excellent recreational experience, but it can be challenging due to unpredictable winds and the constant fluctuation in water levels. Even boaters using electric motors are wise to take a fully-charged battery due to frequent strong winds. The public can access the river from Floras Lake outlet, Storm Ranch, and Lower Fourmile Road. In 2003, approximately 100 kayakers and canoers accessed New River from the Storm Ranch boat launch.

Spring and early summer are the best times to boat on New River, although some level of use is present all year. Even during the middle of winter, a break in the weather can provide an excellent opportunity to float the river during higher flow conditions. In the summer, the water level drops considerably and strong north winds make boating more challenging. Because of concerns for nesting Western Snowy Plovers

from March 15 through September 15, boaters are asked not to disembark on the west side of the river due to the adjacent dry-sand restricted areas on the foredune. These nesting areas are closed to visitors during this time.



Kayaking on New River during a rare calm day.

Ocean Shore

The ocean shore along New River is considered to be one of the most remote stretches of beach in all of Oregon. BLM land within the ACEC includes the dry sand portion of the beach above the mean high tide line. The state-owned beach zone includes the wet sand portion of the beach below mean high tide.

The 22-mile segment of beach between Cape Blanco State Park and Bandon has been designated by the state as part of the Oregon Coast Trail (also known as the proposed Jedediah Smith National Historic Trail). The New River segment of the trail is unmaintained and consists only of the beach below the high tide line. In total, this 360-mile-long trail runs from California to Washington, linking together the state's numerous coastal parks and public lands.

Most backpackers hike the New River section of the Oregon Coast Trail during the summer, when stream crossings are easier. Strong north winds during the summer encourage hikers to travel south. Seven miles of this trail borders the New River ACEC where special rules apply and a recreation permit is required for backcountry camping under special circumstances. During the summer of 2003, only 20 backpackers were observed hiking the beach along New River during routine monitoring of the area.

Although only seven miles of this 22-mile segment of the trail are adjacent to the ACEC, they are within the central portion of hike. Because of the long distance, some backpackers are unable to complete this segment of the trail in one day and have been observed camping in portions of the ACEC closed during

the Western Snowy Plover nesting season. The ocean shore adjacent to New River is open year-round; however, from March 15 through September 15, beach restrictions above the mean high tide line are enforced to protect breeding plovers. BLM requires that visitors avoid these designated dry-sand portions of the beach. The entire beach west of New River on federal, state, county, and private land is closed to OHVs year-round.



Ocean shore along New River.