POTTER POINT STATE GAME REFUGE

RESOURCE INVENTORY

PREPARED BY

ALASKA DEPARTMENT OF FISH AND GAME

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LAND OWNERSHIP

The landward boundary of Potter Point State Game Refuge study area is delineated by the toe of the bluff which extends from Campbell Point southeasterly for approximately 11 miles to Potter Creek. There are approximately 2,300 acres of land between this boundary and the mean higher high water line. This land is under Federal, State, Municipal, and private ownership (Land Ownership Map). Only State-owned lands and adjacent State waters comprise the Refuge as established by Alaska Statute 16.20.030(b). The State owns the tidelands extending from mean higher high water to mean lower low water. However, only 62 percent (1,432 acres) of the land between the toe of the bluff and mean higher high water is under State ownership. This includes 33.92 acres in Potter Marsh (defined here as the area between the Old and New Seward Highways) leased to a private individual in 1960 for a 55-year term.

Approximately 32 percent of the land is under private ownership. Most of this private land (94 percent) lies in the northeast portion of the Refuge; one third of this land is owned by a single individual.

Municipality-owned lands comprise only two percent of the area. This includes a small portion of Johns Park which extends below the toe of the bluff. An additional 9.3 percent of both State and Federal land was selected by the Municipality under the Municipal Land Entitlement Act of 1978. Although these selections were rejected by the Department of

Natural Resources because they were located within Potter Point State Game Refuge, the Municipality has appealed the decision and action is pending.

Approximately four percent of the 2,300 acres is under Federal ownership. The 200 foot right-of-way owned by the Alaska Railroad comprises most of this land. The rest of the Federally-owned lands are part of the Point Campbell Military Reservation which lies in the vicinity of Campbell Point.

VEGETATION

The coastal lowlands within Potter Point State Game Refuge exhibit pronounced vegetative zonation with bands of distinct plant communities running roughly parallel to the Turnagain Arm shoreline. These zones also correlate with the frequency and duration of tidal flooding. A freshwater marsh (Potter Marsh) has developed at the southeastern end of the Refuge where a man-made railroad embankment restricts tidal access. The vegetation is diverse in this area, with salt tolerant species extending inland from the Rabbit Creek culvert, and a now flooded deciduous forest in transition to wet marsh at the most southern end. Subsidence during the 1964 earthquake extensively altered the plant communities in the Refuge. Dead trees and shrubs killed by exposure to salt water as a result of subsidence are abundant in some areas. The natural plant communities have been disrupted to some extent by two sewer lines, numerous "cat" trails and many landfills along the bluff.

Seven broad types of plant communities were identified on Potter Point State Game Refuge (Vegetation Communities Map). North of Rabbit Creek these communities were mapped from the overlays supplied with the WAPORA Wetlands Report (Pichon, 1978). Other information was gathered from the National Wetlands Inventory Map, USFWS (1980), a report by Batten et al. (1978) and short field reconnaisance.

Tidal Flats comprised of mud and small ponds extend from mean higher high water seaward into Turnagain Arm. In mid-summer large beds of green algae bloom well out into this intertidal zone.

Puccinellia-Triglochin Community is the most seaward vascular vegetation. It is dominated by creeping alkali grass (Puccinellia phryganodes), patches of large alkali grass (Puccinellia nutkaensis) and rosettes of seaside arrow-grass (Triglochin maritimum). Large areas of water or bare silty clay substrate are exposed throughout this sparsely vegetated zone. Slender glasswort (Salicornia europaea), goose tongue (Plantago maritima juncoides), and spearscale (Atriplex alaskensis) are common associates. This community extends a short distance into the freshwater marsh at the southeastern end of the Refuge where regular tidal flooding is facilitated by the culvert at Rabbit Creek.

Carex Community is less frequently flooded by tidal water than the Puccinellia-Triglochin Community. This sedge meadow is dominated by dense stands of Lyngbye sedge (Carex lyngbyaei). Occasional stands of

Ramenski sedge (Carex ramenskii) are found on the seaward edge of this community type. Silverweed (Potentilla egedii) and arrow-grass (Triglochin spp.) are the most frequent associates. Small ponds scattered throughout this wet marsh support submergents such as pondweeds (Potamogeton spp.), wigeon grass (Ruppia spiralis), horned pondweed (Zannichellia palustris), and four-leaf mare's tail (Hippuris tetraphylla).

Calamagrostis canadensis Community often occurs in a narrow band adjacent to the upland and is also common in the forest edge. The grass bluejoint (Calamagrostis canadensis) is the dominant species, and occasionally is mixed with silverweed. In many places this community was too narrow to designate on the vegetation map.

Scirpus - Carex Marsh Community is found in the very wet, permanently flooded freshwater area at the southeastern end of the Refuge which was created by the embankment of the Alaska Railroad. Tidal access has been severely restricted except in the immediate area of the Rabbit Creek culvert. Most fresh water enters the area from hillside run-off. Bulrush (Scirpus sp.) and sedges (Carex spp.) often form bands of vegetation in the open water with filiform pondweed (Potamogeton filiformis) among associated aquatic plants. Bulrush is present on a few ponds in the coastal lowland, although it is generally rare elsewhere in the Refuge.

Shrub-Bog Community is the least affected by tidal flooding and extends inland from the wet marsh communities to where elevation and drainage

allow upland plants to grow. Ponds are generally deeper with little aquatic vegetation. The substrate is poorly drained. This plant community is subdivided into two types on the vegetation map. The Myrica gale Type represents a transition from forested bog to wet marsh. Sweet gale (Myrica gale) mixed with bluejoint is abundant in the fresh-water area at the southeastern end of the Refuge where the deciduous forest was altered by flooding. Dead birch trees are scattered throughout the area. This type intergrades with a Myrica gale-Sphagnum-Spruce Type characterized by an abundance of mosses and ericaceous shrubs amidst scattered black spruce. Hummock tops support bluejoint and other plant species requiring better drainage.

The Black Spruce Community includes two forests, one of living black spruce (Picea mariana) and one of dead spruce trees killed by salt water intrusion following subsidence in the 1964 earthquake. A floating bog mat of sphagnum moss and herbaceous plants lies beneath the living black spruce forest. White spruce (Picea glauca) is also found in the open overstory and dwarf birch (Betula nana), alder (Alnus tenuifolia) and labrador tea (Ledum sp.) are common woody associates. In the flooded forest, bluejoint is abundant and hummocks are characteristic. The Black Spruce Community was mapped to include vegetation similar to the Shrub-Bog Community.

Deciduous Community is abundant in higher elevations near the base of the bluff. Paper birch (Betula papyrifera), balsam poplar (Populus balsamifera) and alder (Alnus sp.) are characteristic trees. Thickets

of shrubby willow (Salix spp.) and alder are also present. This intergrades with a forest dominated by alder (Alnus sp.) where many pools and rivulets exist in the understory. The forest floor is composed of hummocks, with sphagnum moss and other wetland plants in the depressions. Bluejoint is common throughout this community, although it is restricted to the hummock tops in the alder forest. Narrow zones of this alder wind through the Shrub-Bog Community.

BIRDS

Potter Point State Game Refuge, with its extensive tidal flats, marsh communities, and alder-bog forest, supports one of the richest avifauna in the Anchorage area. At least 130 different species of birds have been sighted in the Refuge (Table 1). It provides important resting and staging areas for waterbirds during spring and fall migration and is used by a large breeding waterfowl population. Grebes, raptors, gulls, Arctic terns, and an interesting collection of passerines also interact within this varied habitat.

Peak waterfowl concentrations occur from about April 25 - May 12 and September 10 - October 5. An ADF&G aerial survey during the spring migration of 1975, sighted 1,200 dabblers and 35 diving ducks on the Refuge. Lesser Canada geese (Branta canadensis parvipes) were estimated at 804 individuals; 450 snow geese and 65 white-fronted geese were also recorded. Most of these geese continue on to northern breeding grounds; however, after the 1964 earthquake a small population of lesser Canada

geese began to breed within the Refuge. They often nest on hummocks in the Carex Community and feed with their goslings in the salt marsh arrow-grass. The saltwater influence in the area of the Rabbit Creek culvert creates a favorite feeding area as well as an excellent public viewing site for lesser Canada geese. The average fall flight of geese for the entire Refuge is considered to be at least 300-350 birds (ADF&G aerial survey, 1974), and breeding densities may still be increasing. Band returns from lesser Canada geese banded on the Refuge, indicate that these residents winter in the Willamette and lower Columbia river valleys of Oregon and Washington. The spring flocks of snow geese continue to Wrangel Island in Russia to breed and rarely occur on the Refuge in the fall. They winter in northern Washington and southern British Columbia.

The annual average breeding duck population is estimated to be 500 birds and the fall flight is estimated to be around 1,000 birds. This is an average of 80 breeding ducks per square mile and is excellent production, considerably higher than most Cook Inlet marshes. Mallard, pintail, green-winged teal, American wigeon, and northern shoveler are common nesters on the Refuge. Dabbling ducks and their broods are common in the extensive Carex Community; aquatic plants such as wigeon grass and pondweeds as well as the sedges are all known food sources. Diving ducks, such as common and Barrow's goldeneye, canvasback, greater and lesser scaup, and bufflehead are also present during migration. Scaup and recently canvasbacks have raised broods on the freshwater marsh. They often feed in the Carex-Scirpus Community with its deeper pools and small fishes.

The freshwater marsh between the Old and New Seward Highways, popularly known as Potter Marsh, is a good place to see less common species during migration. Gadwall, blue-winged teal, redhead, European wigeon, and ring-necked duck have delighted lucky birdwatchers. The only sighting of an Asiatic garganey in southcentral Alaska occurred in this area. Migrating whistling and trumpeter swans regularly spend a short time here in spring. Horned and red-necked grebes carry out their fascinating courtship behaviors and raise their young in close proximity to the highway.

A common predator is the bald eagle which is often accompanied by an entourage of harassing mew gulls, arctic terns, or ravens. Northern harriers, a regular raptor during migration, are usually noticed as ducks and shorebirds flush from the marsh. An occasional short-eared owl may be seen cruising the bog forest edge behind the wet marsh and muskeg.

During peak migration periods over 10,000 shorebirds are present on the marsh and adjacent mudflats. Twenty-six different species of shorebirds have been recorded in recent years although only half of these are present during the summer breeding season. Greater yellowlegs commonly nest within the Refuge. Spotted sandpipers, short-billed dowitchers, and least sandpipers are also summer residents. The number of northern phalarope peaks during spring migration and they are common in the wet marsh throughout the summer. In some years pectoral sandpipers are abundant during spring migration. Storms in the Cook Inlet region often

force large flocks of migratory birds to wait in the Potter Refuge marshes, and sometimes blow rare stragglers into the area. An accidental migrant from Asia, the terek sandpiper, was seen in recent years. Excellent snipe habitat exists in the Carex Community near the bluff and the flooded black spruce forest provides excellent food and escape cover.

A mew gull colony is present in the Shrub-bog Community in Potter Marsh. The mew gulls are often seen perched on the drowned birch throughout this area and nest on hummocks of vegetation. Glaucous-winged gulls, herring gulls, and many hybrids are present during spring migration. Arctic terns also nest on hummocks in the wet marsh area, feeding in the deeper ponds on small fishes.

Five species of swallows have been recorded at Potter Marsh. The varied deciduous habitat within the lowlands supports a rich variety of passerines common to the Anchorage area. Rusty blackbirds use the muskeg areas and an occasional red-winged blackbird appears during migration and spends the summer. The willow and alder thickets at the marsh edge offer excellent nesting habitat for Lincoln sparrows and you may hear five sparrow species singing here in summer. In 1981, the first Alaska State Record of a swamp sparrow was made in the Sweet gale Community in Potter Marsh. Spring migration also brings large flocks of lapland longspurs and water pipits into the area where they rest and feed during their journey to nesting areas in the northern tundra. The few rugged birds which remain throughout the winter at Potter Marsh include ravens, magpies, redpolls, and black-capped chickadees.

Table 1. Avian Species and Species Groups Recorded on Potter Point State Game Refuge[1] (common and scientific names from Kessel and Gibson, 1978).

Common Name	Scientific Name
Loons and Grebes:	
*Arctic Loon	*Gavia arctica*
*Red-necked Grebe	*Podiceps grisegena*
*Horned Grebe	*Podiceps auritus*
Herons:	
Great Blue Heron	*Ardea herodias*
Swans:	
Whistling Swan	*Olor columbianus*
Trumpeter Swan	*Olor buccinator*
Geese:	
*Canada Goose	*Branta canadensis*
White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Dabblers:	
*Mallard	*Anas platyrhynchos*
*Gadwall	*Anas strepera*
*Pintail	*Anas acuta*
*Green-winged Teal	*Anas crecca*
Garganey	*Anas querquedula*
Blue-winged Teal	*Anas discors*
*Northern Shoveler	*Anas clypeata*
European Wigeon	*Anas penelope*
*American Wigeon	*Anas americana*
Divers and Seaducks:	
*Canvasback	*Aythya valisineria*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
*Greater Scaup	*Aythya marila*
Lesser Scaup	*Aythya affinis*
Common Goldeneye	*Bucephala clangula*
Barrow's Goldeneye	*Bucephala islandica*
Bufflehead	*Bucephala albeola*
Oldsquaw	*Clangula hyemalis*
Harlequin Duck	*Histrionicus histrionicus*
White-winged Scoter	*Melanitta deglandi*
Red-breasted Merganser	*Mergus serrator*

* known or suspected breeder

[1] Sources include: ADF&G report (1970), Anchorage Audubon Seeing Eye Notebook

Common Name	Scientific Name
Raptors:	
Goshawk	*Accipiter gentilis*
Red-tailed Hawk	*Buteo jamaicensis*
Swainson's Hawk	*Buteo swainsoni*
Rough-legged Hawk	*Buteo lagopus*
Golden Eagle	*Aquila chrysaetos*
Bald Eagle	*Haliaeetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Osprey	*Pandion haliaetus*
Gyrfalcon	*Falco rusticolus*
Peregrine Falcon	*Falco peregrinus*
Merlin	*Falco columbarius*
American Kestrel	*Falco sparverius*
Ptarmigans:	
Willow Ptarmigan	*Lagopus lagopus*
Cranes:	
*Sandhill Crane	*Grus canadensis*
Coots:	
American Coot	*Fulica americana*
Shorebirds:	
*Semipalmated Plover	*Charadrius semipalmatus*
*Killdeer	*Charadrius vociferus*
American Golden Plover	*Pluvialis dominica*
Black-bellied Plover	*Pluvialis squatarola*
Hudsonian Godwit	*Limosa haemastica*
Whimbrel	*Numenius phaeopus*
*Greater Yellowlegs	*Tringa melanoleuca*
*Lesser Yellowlegs	*Tringa flavipes*
Solitary Sandpiper	*Tringa solitaria*
Terek Sandpiper	*Xenus cinereus*
*Spotted Sandpiper	*Actitis macularia*
Wandering Tattler	*Heteroscelus incanus*
Ruddy Turnstone	*Arenaria interpres*
Black Turnstone	*Arenaria melanocephala*
*Northern Phalarope	*Phalaropus lobatus*
*Common Snipe	*Gallinago gallinago*
*Short-billed Dowitcher	*Limnodromus griseus*
Long-billed Dowitcher	*Limnodromus scolopaceus*
Surfbird	*Aphriza virgata*
Sanderling	*Calidris alba*
Semipalmated Sandpiper	*Calidris pusilla*
Western Sandpiper	*Calidris mauri*
Rufous-necked Sandpiper	*Calidris ruficollis*
*Least Sandpiper	*Calidris minutilla*
Baird's Sandpiper	*Calidris bairdii*
Pectoral Sandpiper	*Calidris melanotos*
Dunlin	*Calidris alpina*

Common Name	Scientific Name
Jaegers:	
Parasitic Jaeger	*Stercorarius parasiticus*
Gulls:	
Glaucous Gull	*Larus hyperboreus*
*Glaucous-winged Gull	*Larus glaucescens*
Herring Gull	*Larus argentatus*
*Mew Gull	*Larus canus*
Bonaparte's Gull	*Larus philadelphia*
Ivory Gull	*Pagophila eburnea*
*Arctic Tern	*Sterna paradisaea*
Doves:	
Rock Dove	*Columba livia*
Owls:	
*Great Horned Owl	*Bubo virginianus*
*Hawk Owl	*Surnia ulula*
Short-eared Owl	*Asio flammeus*
Boreal Owl	*Aegolius funereus*
Kingfishers:	
Belted Kingfisher	*Megaceryle alcyon*
Woodpeckers:	
*Common Flicker	*Coaptes auratus*
Flycatchers:	
Say's Phoebe	*Sayornis saya*
*Alder Flycatcher	*Empidonax alnorum*
Olive-sided Flycatcher	*Nuttallornis borealis*
Swallows:	
*Violet-green Swallow	*Tachycineta thalassina*
*Tree Swallow	*Iridoprocne bicolor*
Bank Swallow	*Riparia riparia*
Barn Swallow	*Hirundo rustica*
*Cliff Swallow	*Petrochelidon pyrrhonota*
Jays, Magpies, and Crows:	
Gray Jay	*Perisoreus canadensis*
Black-billed Magpie	*Pica pica*
*Common Raven	*Corvus corax*
Chickadees:	
Black-capped Chickadee	*Parus atricapillus*
Thrushes:	
American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus haevius*
Hermit Thrush	*Catharus guttatus*
*Swainson's Thrush	*Catharus ustulatus*
Gray-cheeked Thrush	*Catharus minimus*

Common Name	Scientific Name
Kinglets:	
Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Regulus calendula*
Pipits:	
Water Pipit	*Anthus spinoletta*
Shrikes:	
Northern Shrike	*Lanius excubitor*
Wood Warblers:	
Orange-crowned Warbler	*Vermivora celata*
Yellow Warbler	*Dendroica petechia*
*Yellow-rumped Warbler	*Dendroica coronata*
*Northern Waterthrush	*Seiurus noveboracensis*
*Wilson's Warbler	*Wilsonia pusilla*
Blackbirds:	
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Red-winged Blackbird	*Agelaius phoeniceus*
*Rusty Blackbird	*Euphagus carolinus*
Brown-headed Cowbird	*Molothrus ater*
Grosbeaks, Finches, and Sparrows:	
*Common Redpoll	*Carduelis flammea*
Pine Siskin	*Carduelis pinus*
*Savannah Sparrow	*Passerculus sandwichensis*
Dark-eyed Junco	*Junco hyemalis*
Tree Sparrow	*Spizella arborea*
*White-crowned Sparrow	*Zonotrichia leucophrys*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Fox Sparrow	*Passerella iliaca*
*Lincoln's Sparrow	*Melospiza lincolnii*
Swamp Sparrow	*Melospiza georgiana*
*Song Sparrow	*Melospiza melodia*
Lapland Longspur	*Calcarius lapponicus*
Snow Bunting	*Plectrophenax nivalis*

MAMMALS

With a few exceptions, large and moderate sized mammals are not abundant within Potter Point State Game Refuge. Given the proximity of several Anchorage residential communities to the marsh, and the vast marsh area subject to tidal influence, there simply is not sufficient quality habitat available for animals such as moose, black bear, lynx, coyote, river otter, beaver, and red fox. Several smaller mammals, requiring a few acres or less on which to live, exist in fair abundance mainly within portions of the refuge adjacent to the toe of the bluff. At these locations forested areas provide adequate habitat. These species include snowshoe hares, red squirrels, and least weasels. Two other species, mink and muskrats, are relatively common near freshwater ponds and streams where their habitat requirements are met.

Moose are the most abundant large species and are commonly observed within most vegetated areas. Refuge lands constitute only a portion of their range, particularly during the winter months, and when seen, moose may simply be passing through in search of preferred habitat. The same is true of black bears which have been observed at numerous locations. It is doubtful that the Refuge includes the entire range for even one black bear. Several coyotes have been seen at various locations, but most often frequent the Rabbit Creek - Oceanview sewer outfall area. They also range several miles off Refuge lands. Lynx, river otter, and red fox are rarely seen. Infrequent sightings have occurred between the end of Klatt Road and Potter Creek. During lows in their cycle, lynx

may be absent from the Refuge for several years. Red foxes are uncommon throughout most of the Anchorage area. Very little quality river otter habitat exists anywhere near Anchorage. Two beaver houses are found in the Potter Marsh viewing portion of the Refuge. At least one beaver has been seen in 1981, and if a family group is present up to five or six may inhabit these houses. After several winters of heavy snowfall and/or mild temperatures, muskrats become quite numerous between the Seward Highways. Severe ice conditions evidently "freeze out" wintering muskrats and the population may decline rapidly. Least weasels are found in limited numbers throughout much of the brushy portions of the Refuge. Snowshoe hares are common at these same locations during the peak of their cycle. Red squirrels are common whenever mature stands of spruce exist.

FISHERIES

Only two streams in the Refuge, Rabbit Creek and Campbell Creek, have significant fish populations. Estimated numbers and species of fish are listed in Table 2. Potter Creek and a few other small streams also have minimum numbers of Dolly Varden and a small run of pink salmon.

Table 2. Fish known to occur in Rabbit Creek and Campbell Creek on Potter Point State Game Refuge.

	Number of Spawning Adults	
Species	Rabbit Creek	Campbell Creek
Pink Salmon	up to 500	up to 1,000
Silver Salmon (coho)	up to 100	up to 300
Red Salmon (sockeye)	0	up to 100
King Salmon (chinook)	5-15	up to 300
Dolly Varden	500	up to 1,000
White fish	100	0
Stickleback	common	common
Sculpin	common	common

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