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MEMORANDUM

# United States Department of the Interior

Fish and Wildlife Service

Anchorage Fish and Wildlife Enhancement

Sunshine Plaza, Suite 2B

411 West 4th Avenue

Anchorage, Alaska 99501

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Arctic Islands Unit

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OCT 1 1987

TO: Field Supervisor  
Anchorage Fish and Wildlife Enhancement

TO: Endangered Species Coordinator

TO: Candidate Vertebrate File

FROM: Michael Amaral  
Endangered Species Specialist  
Anchorage Fish and Wildlife Enhancement

*Michael Amaral*

SUBJECT: Amak Island Trip Report - Notes on the Amak Song Sparrow and Amak Vole

Both the Amak Island song sparrow (Melospiza melodia amaka) and Amak vole (Microtus oeconomus amakensis) are currently category 2 candidate species under the Endangered Species Act and both are known only from this small island approximately 15 miles north of Cold Bay in Bristol Bay. Dr. Gerald Shields, professor of genetics at the University of Alaska, Fairbanks, and I visited Amak in July 1987 for the purpose of obtaining status information relative to their endangered species candidacy. Specifically, we hoped to census the song sparrows on the island and to collect specimens for both genetic and morphological comparison with other Melospiza. Regarding the vole, I intended to live trap individuals to determine their occurrence in selected habitats and to map occupied habitat to estimate extent and availability. A more complete explanation of objectives is provided in the attached status survey proposals. Although we had initially intended to spend 7-10 days on the island, vessel scheduling required us to shorten our field time to two days, July 24 and 25, 1987.

## RESULTS

Amak Song Sparrow: Gerald Shields and his daughter Kelly, arrived at Adak on July 18 and spent the next four days attempting to mist net song sparrows there. The race of song sparrow described from Adak (maxima) is said to be most similar to amaka from Amak Island (Gabrielson and Lincoln, 1951). Rain and wind largely frustrated this effort but one bird was captured and another was collected. I arrived at Adak on the 22nd and we departed aboard the Tigla that afternoon for Amak Island. Upon arrival at Amak Island, Dr. Shields and Kelly attempted to mist net song sparrows, while volunteer Bob Angel and I walked the perimeter of the island counting song sparrows as we went. The fact that immature golden-crowned sparrows, savannah sparrows, fox sparrows and lapland longspurs were also present complicated this effort

somewhat, but I estimate that 25 song sparrows were present on Amak on 25 July (Figure 1). Our ground level survey did not extend completely around the island as there are steep cliffs on the northwest reach. Song sparrows were heard singing below the cliff at the northern tip of the island, indicating that we could have missed a few birds that occupy the beach zone below the cliffs on the western side. Previous visitors to Amak Island in the past two decades including Dan Gibson, Vernon Byrd, Rich MacIntosh and Tony DeGange reported far fewer observations of song sparrows (pers. comm.). However, all of these individuals were conducting studies on other species and were not specifically interested in Melospiza.

Dr. Shields had difficulty mist netting sparrows because they were largely unresponsive to taped vocalizations he was using as a lure. This we attribute to the lateness of the breeding season and the fact that young had already fledged and adults were no longer strongly territorial. Dr. Shields succeeded in capturing one song sparrow which he took to his lab at Fairbanks. Following the use of tissues from this bird for mitochondrial DNA comparisons with other song sparrows, the specimen will be prepared at the University Museum at Fairbanks. All other Amak song sparrow specimens (four) are located at the Smithsonian in Washington D.C.

**Amak Vole:** The lower elevations on Amak Island are richly vegetated with a lush growth of wild celery (Angelica lucida), cow parsnip (Heraculum lanatum), beach rye (Elymus mollis), lupine (Lupinus nootkatensis), Indian paintbrush (Castilleja spp.), and numerous other forbs. This lush meadow-like habitat appears to comprise the majority of area available to the Amak vole as the island quickly becomes steep and rocky away from the shoreline, rising to 1760 feet at its highest point (Figure 2). I placed 10 conical pitfall traps and 8 baited Sherman live traps in vole runways in this habitat during the early evening of 24 July. At 9:00 a.m. on the 25th, four of the cone traps contained voles while no voles were caught in the Sherman traps. Four voles of 18 traps is a high capture rate albeit the small sample size.

To my knowledge, this is the first documented occurrence of the vole on Amak Island since F.H. Fay collected 12 specimens for karyology and helminthology in 1968. I walked a transect in a northerly direction from the southern extreme of the island and vole sign was evident throughout the vegetation/soil interface in this umbel, mixed-forb meadow habitat. The meadow area on the northern end of the island also contained vole sign. Our short stay on the island prevented trapping here but my general impression was that voles are present but less abundant on the north side of the island. Fay reported that in 1968 voles were also present in crowberry (Empetrum nigrum) at slightly higher elevations on the eastern side of the volcano (Fay and Sease 1985). Although I did not explore the higher elevations, my guess is that voles are largely limited to the lower, more densely vegetated portions of the island. Approximately 800 acres of this habitat exists on Amak.

**Predators:** Red fox are the most obvious potential predator on the island. Fox sign and trails are most abundant along the shoreline but fox also utilize the interior portions of Amak. Fox were commonly observed whenever we were ashore and we estimated their numbers at 25 animals, minimum. Our

observations and numerous bird carcasses (mostly murre and kittiwakes) found along the beach suggested that they were foraging primarily along the shoreline, at least during the summer months while this food source is available. It seems likely that the fox would prey on voles during the winter when migratory and nesting seabirds are absent. Fay speculated that since the Amak vole is the only arvicolid on the island, it is probably the primary prey for the resident red fox. Other potential predators include parasitic jaeger, glaucous-winged gull, bald eagle, and northern raven.

Interestingly, Fay reported that ground squirrels (Spermophilus parryi) were also present on Amak Island in 1968. We saw no sign of this species in 1987.

## CONCLUSIONS

We learned that a small breeding population of song sparrows are present on Amak Island. Because of our ability to capture just a single bird, it may be necessary to return to Amak in 1988 to obtain additional material for mt DNA analysis. Additional specimens would also be desirable to compare with the four currently in the collection at the Smithsonian. Naturally, our desire for additional birds for study has to be tempered with our knowledge that they are relatively rare on Amak.

Murie (1959) remarked on the abundance of voles on Amak in 1925, while Fay found them present in all vegetated areas but not especially numerous anywhere in 1968. The Amak vole population appeared high in July 1987, but not as abundant as reported by Murie in 1925 when foxes were absent. Two of the captured animals were immatures suggesting that -- following reproduction but prior to winter -- vole numbers may well have been at their peak. Red fox are probably the only predator of any consequence to the vole population. The apparent abundance of voles suggests that they have adapted to this predation and fox do not present a threat to their continued occurrence on the island.

There was little sign of man present on the island. Except for the remains of a plane on the eastern slope of the island's tallest peak and discarded fishing net, floats, and other debris from this industry, the island is in pristine condition. Both species have apparently adapted to the presence of indigenous red fox that periodically appear and persist on the island following severe winters when sea ice connects Amak to the mainland Alaska Peninsula. Because of the island's small size and rugged topography, both species have limited habitat available to them. If both animals are indeed subspecifically distinct, which seems to be a matter of disagreement among knowledgeable individuals, they are therefore quite rare. The habitats available to both species are undisturbed and do not require special management, other than preservation in their present condition. Above all, the introduction of exotic animals, such as rats or other rodents should be avoided.

Two marine birds (harlequin duck and tufted puffin) which were not previously reported for Amak in the Seabird Colony Catalog (Sowls et al. 1978) were observed (Figure 3). Hundreds of ruddy turnstones were present suggesting that Amak may be an important staging area for this species. Table 1 presents an annotated list of all birds and mammals observed during our brief stay.

#### LITERATURE CITED

- Fay, F.H. and J.L. Sease. 1985. Preliminary Status Survey of Selected Small Mammals. Unpubl. Coop. Unit rep. for U.S. DOI, FWS, Office of Endangered Species, Anchorage, Alaska. 53 pp.
- Gabrielson, I.N. and F.C. Loncoln. 1951. The Races of Song Sparrows in Alaska. Condor, Vol. 53: 250-255.
- Murie, O.J. 1959. Fauna of the Aleutian Islands and Alaska Peninsula. No. America Fauna. 61:1-364.
- Sowls, A.L., S.M. Hatch, and C.J. Lensink. 1978. Catalog of Alaskan Seabird Colonies. U.S. DOI, FWS biol. Series Program. OBS-78/78.

Table 1. Birds and mammals observed on or near Amak Island, July 24-25, 1987.

<u>Species</u>	<u>Abundance</u>	<u>Remarks</u>
Savannah sparrow	A	
Golden-crowned sparrow	C not A	
Fox sparrow	C not A	
Song sparrow	C not A	25-30
Rosy finch	C not A	about 10 seen
Water pipit	C not A	6 seen
Winter wren	C not A	about 10 seen
Common raven	C not A	
Bank swallow	A	colony present
Rock sandpiper	A	several flocks seen
Short-billed dowitcher	C not A	one small flock
Wandering tattler	C not A	about 6 seen
Ruddy turnstone	A	several hundred seen
Common murre	A	large colonies
Thick-billed murre	A	large colonies
Tufted puffin	C not A	small number present
Horned puffin	A	less than 100
Red-faced cormorant	A	large colony
Black-legged kittiwake	A	large colonies
Glaucous-winged gull	C not A	
Parasitic jaeger	C not A	seen nearshore
Bald eagle	C not A	minimum of 2 pairs
Harlequin	C not A	about 14 seen
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Steller sea lion	Abundant on north shore	
Harbor seal	C not A	
Sea otter	About 20 present, several females with pups	
Red fox	Conspicuous, 20-30 present	
Amak vole	Appears to be abundant	

A = Abundant

C not A = Common but not abundant

Map of Adak Island, Aleutian Islands, National Wildlife Refuge. The map shows the island's coastline, major roads, and various landmarks. A large area on the left is marked "NOT Surveyed". The island is divided into sections labeled 1 through 5. Key locations include Amak Island, National Wildlife Refuge, and various points of interest like 352 Δ Aniak and 160 Δ Badger. The map also shows surrounding waters, including Adak Bay, and various depth soundings.

NOT  
surveyed

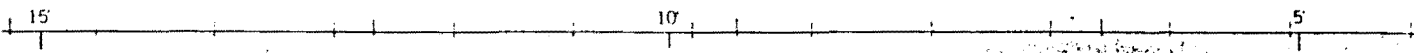
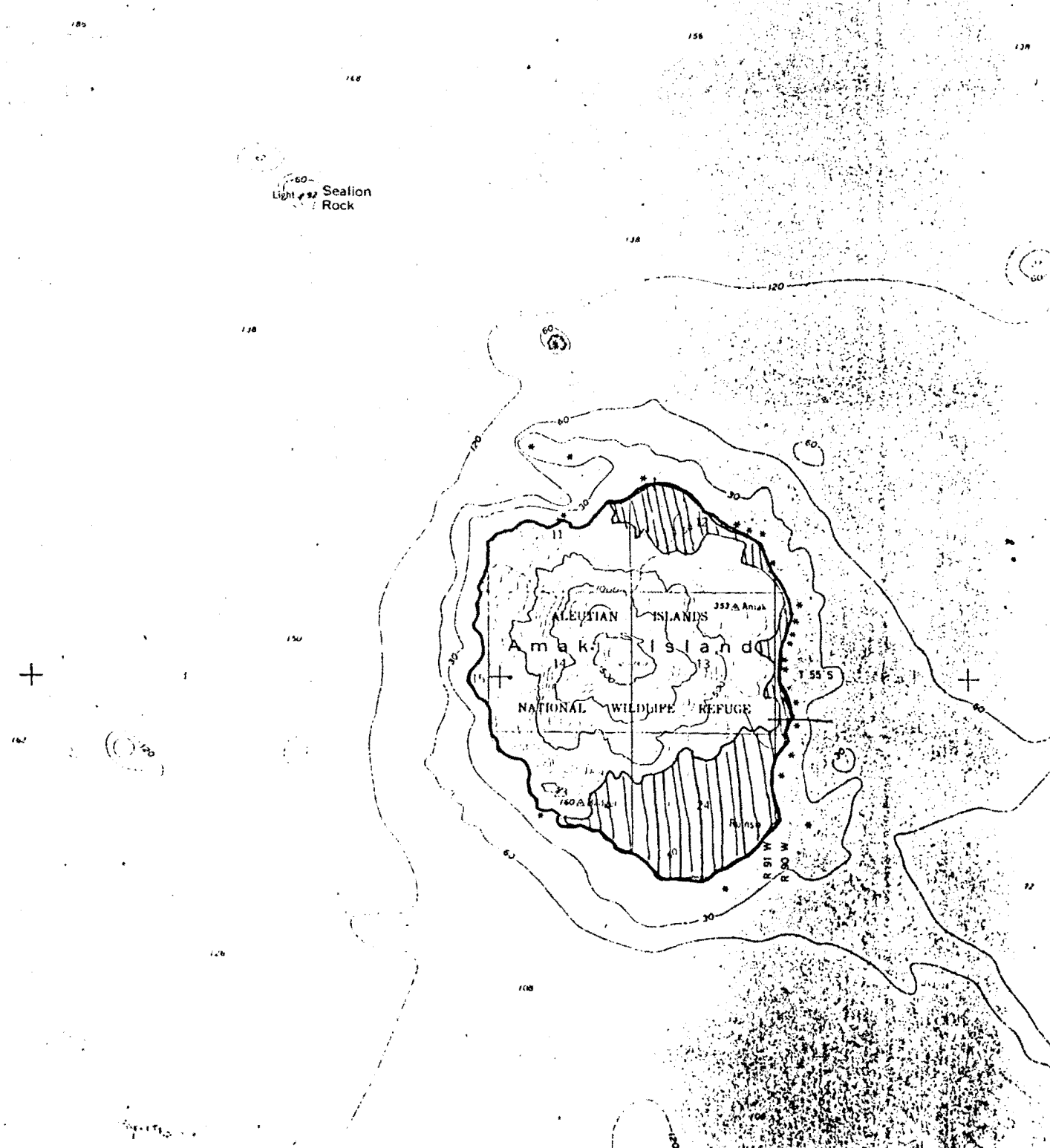


Figure 2. Extent and location of umbel- mixed forb meadow habitat available to the Amak vole.





# Seabird Colonies

Map 29

COLD BAY

All major colonies of seabirds have probably been identified in this area, but a few additional small colonies of gulls and terns may be present. Amak Island provides nesting habitat for the largest seabird colony in southern Bristol Bay and, combined with Sealion Rock, is the main hauling ground for Steller's sea lions in the area. The entire world's population of Black Brant and large numbers of other waterfowl use Izembek Lagoon as a staging area during fall migration and large numbers of brant and other waterfowl stop there more briefly in spring.

SPECIES	AREA NUMBER												Total
	029 001	029 002	029 003	029 005	029 006								
Northern Fulmar													
Fork-tailed Storm Petrel		P											P
Leach's Storm Petrel													
Cormorant													
Double-crested Cormorant													
Pacific Cormorant		4											4
Red-faced Cormorant		1,450											1,450
Harlequin Duck		15 *	25										1,475
Common Eider													
Bald Eagle		5											5
Black Oystercatcher													
Glaucous Gull													
Glaucous-winged Gull	200	X	50										250
Mew Gull													
Black-legged Kittiwake		3,570	74										3,644
Red-legged Kittiwake													
Arctic Tern													
Alaskan Tern				X									X
Murre		6,536	2,300										8,836
Common Murre		X	X										X
Thick-billed Murre		X	X										X
Black Guillemot													
Pigeon Guillemot		10			75								85
Ancient Murrelet													
Cassin's Auklet													
Parasitic Auklet													
Crested Auklet													
Leach's Auklet													
Whiskered Auklet													
Rhinoceros Auklet													
Horned Puffin		92			300								392
Tufted Puffin	1,500	20 *	50										1,650
Other													
Total	1,800	11,567	2,499	X	375								16,341

X = Present P = Probably Present

\* This survey.

Figure 3. Seabird Colony Catalogue, Amak Island.

AREA NO.  
0228-9

COLONY

001 Il. Iwasaki Is.

002 Amak Island

003 Sealion Rocks

004

005 Birdall Island

006 Seal Cape