INNOKO NATIONAL WILDLIFE REFUGE

McGrath, Alaska

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1983

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U.S. Department of the Interior
Fish and Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

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Personnel

1.	Phillip J. Feiger - Refuge Manager	GS 12/1	EOD 9-20-81	PFT
2.	James Demientieff - Bio/Tech Pilot	GS-12	EOD 7-5-82	TPT
3.	Martha Branscom - Clerk-Typist	GS-4/1	EOD 11-21-83	PFT
4.	Mike F. Smith - Assistant Refuge Manager	GS-11/1	EOD 6-27-82	PFT

Review and Approvals

Phillip J. Feiger 2-23-84 — Submitted by — Date

Refuge Supervisor North — Date

Acting Asst 4/12/84 — Regional Office Review — Date

A. HIGHLIGHTS

Spring run-off results in no flooding this year, shows benefits to wildlife. (Section B.)

Innoko Refuge has its first field season. (Section G.3)

The moose season was monitored on the refuge this year. (Section H.8 and H.17)

New boats are brought into the refuge. (Section I.7)

B. CLIMATIC CONDITIONS

Weather information is taken from National Weather Station records in McGrath. While some variations may occur, the weather on the refuge, 70 miles away, should be similiar.

The weather for the year was typical of interior Alaska with the lowest temperature of -55° recorded on January 12th and a high of 81° on July 5th.

Precipitation, particularly spring snowfall, was low and breakup was gradual. Unlike last year, the Innoko and Iditarod Rivers did not leave their banks and by early June were well below bank level. The low water was beneficial to the survival of moose calves especially during the spring period, when they were newborn. Additional waterfowl nesting habitat was also available this year. Last year much of it was under water during the nest initiation period.

Summer moisture was low, leading to high fire probabilities. Fall rainfall was also relatively light, allowing more flying time during moose season. Freeze up occured in October; by year's end, the ground was still bare on the southern portion of the lower unit.

Month	High	Low	Precip.	Clear Days
Jan	22	-55	.18"	14
Feb	20	-35	.11	6
Mar	40	-27	.01	17
Apr	52	- 4	2.54	7
May	71	29	1.34	6
Jun	80	35	1.18	4
Jul	81	43	1.34	0
Aug	68	32	3.79	0
Sep	60	9	2.05	4
Oct	45	- 4	1.92	2
Nov	47	-18	.51	2
Dec	30	-36	.99	10
TOTALS			15.96	72

For those readers who have never experienced walking around in -50^{o} weather, it is not as terrible as might be imagined; unless the wind is blowing, in which case, it is worse.

E. ADMINISTRATION

1. Personnel:

As is typical in Alaska, our GS-4 secretary resigned. Even with a 25% cost-of-living adjustment, the pay at GS-4 level is not enough to keep good help. In our case, Roylene Andrews worked from July 1982 to August 1983, resigning to return to college. We were able to find a replacement when Marty Branscom was hired, using the local hire provision of Alaska National Interest Lands Act. Marty brings a lot of experience into the job and we look forward to more stability in the position. Now, if we could only find the solution to the absurd pay level...

Refuge Pilot James Demientieff, hired on as an NTE one year temporary appointment in July 1982, extended one year.

The refuge staffing pattern for the three years of our existence is:

	Permanent	Temporary
FY'83	3	1
FY"82	3	1
FY'81	1	0

3. Other Manpower Programs:

How do you gather biological information on a 4+ million acres of land with only two biological staff? How do two sister stations with staff of one and two, respectively, gather data? By being resourceful. We combined our staff with that of Koyukuk NWR (Assistant Manager Kevin Ryan) and Nowitna NWR (Assistant Manager-in-Charge Charles Blair) and set up breeding pair and brood counts on all three refuges.

Through the good graces of the R.O., Ted Heuer, Rich Barcelona, Bill Knauer and Ron Hood joined our effort, as did Cal Lensink, from Research. Rod King and Karen Bollinger, Migratory Birds-North, contributed a week to the cause and one of the best crews ever assembled in Alaska was created.

Part of combined Refuge-R.O. field crew. Left to right: Ted Heuer, Kevin Ryan, Rich Barcelona, Phil Feiger (seated) Jim Demientieff, and Mike Smith. (June '83 Charley Blair)

Phil Feiger, Charley Blair and Kevin Ryan after a hard day... "Where'd you put the beer, Phil?" (June '83 Mike Smith)

4. Volunteers:

Nothing to report.

5. Funding:

There has been a steady decrease in the funding level since the refuge was staffed. To have less money and more demand for information has been difficult. The situation came to a head mid-way through the year when we were informed that we were being tapped for a $16,000 reduction. Like most stations, a 10% reduction in funds had a serious impact. We were faced with the inevitable reduction in force when Koyukuk and Nowitna Refuges each contributed $10,000 toward the cost of our airplane operation. Thanks to the unselfishness of these two stations, we were able to survive a bad situation.

We ended the year on a better note. The ARMM program contributed substantially to our budget for FY'84 and, if no major disaster occurs, we anticipate a productive year.

Funding Level:

FY'84	$244,000	Includes $80,000 ARMM
FY'83	180,000	Reduced Mid-term to $164,000
FY'82	224,000	Reduced Mid-term to $180,000
FY'81	10,000	

With comprehensive planning coming in two years, our low budget will result in general trend data upon which to make decisions that will effect the future of the refuge. We just do not have the manpower to do baseline surveys as we should.

6. Safety:

Due to the bear density on the refuge, most biologists this summer felt more comfortable carrying a firearm while conducting bird surveys. Although many bears were seen, only one acted belligerent enough to warrant a warning shot to disperse him or her. This incident also brought life back into a tired crew.

Actually, moose cows with calves cause more transect changes than bears. Several crews had to go around or retreat from an irrate cow moose and one individual was actually treed.

This cow moose and calf only retreated on foot after the survey crew retreated on foot and returned by boat. (July '83 M. Smith)

A stretch of the upper Innoko River. The south facing slope in the background is covered by black spruce and paper birch, an indication of a well drained permafrost free slope.
(June '83 M. Smith)

One two-man crew wandered off their intended route while conducting brood surveys this summer due to the lack of a good map. The airplane pilot missed them at the prearranged pick up point and was searching the area. A pen-type flare was effectively used to signal the aircraft and then hand signals were used to direct the pilot to a rendezvous site. We will order more flares and smoke canisters as this is an effective way to signal aircraft.

A wall tent, stove, fuel, and field equipment are cached on the refuge for emergency use if weather or other problems prevent the plane from flying. We would like to establish a permanent field station including a cabin. This would be a plus for our safety and comfort when forced to remain overnight unexpectedly, especially in the winter. We have found a good location on a large lake next to the Innoko River which will allow both float plane and boat access.

7. Technical Assistance:

On several occasions during the year we assisted other agencies, usually by providing air transportation.

BLM: Flew snow survey twice.
Flew wildlife census.
Flew survey of seismograph area to check compliance with permits and check timber trespass.

State: During the moose season, we assisted the local Wildlife Protection Officer, who does not have access to a float plane, in investigating wanton waste cases. This provided our first real opportunity to prove we were interested in working with the State, rather than just being another FED operation.

USFWS: Flew Pat Wennekens, Environment Contaminants, while collecting water quality information. Assisted Nowitna and Koyukuk NWR's on several occasions by providing air transportation.

8. Other Items:

As reported last year, there was talk of moving our administrative office to Galena and forming a three station complex. Local opposition culminated in the idea being dropped and for the forseeable future, we anticipate keeping the office in McGrath.

F. HABITAT MANAGEMENT

1. General:

A vegetative inventory and classification plan was initiated in 1983. Color infrared (CIR) aerial photos at a scale of one inch to the mile will form a basis for this inventory. Areas of 40 acres or larger that can be distinguished as distinct on the photos will undergo ground truthing within selected intensive mapping areas (IMAs). Selected CIR photos have been enlarged 4 times and printed on milar. These will then be copied from the milar onto paper at 50¢ per sheet. The paper photos can be used as cheap field maps, with good detail at 4 inches to the mile. This product is of such good detail and so inexpensive after once being put on milar, that we will also use them for waterfowl surveys.

This work will be useful in interpreting aerial photography, but will also serve in the future as ground truthing for landsat imagery. As part of the Comprehensive Conservation Plan (CCP), the entire refuge will be classified using landsat. Innoko is not scheduled to begin this process until 1986. We hope that by 1986 we will have most of the ground truthing completed.

2. Wetlands:

The vegetative inventory described above will be initiated in the wetlands areas since they are most accessible by boat or floatplane amd most important to migratory birds.

3. Forests:

Permits were issued to 3 persons from the village of Grayling to cut house logs on the refuge. The cutting area is mainly along the Yukon River, including some large islands.

Fire management is our most important tool in managing the forested areas of the refuge. Timber harvest is minimal, consisting of logs for cabin construction by trappers and a few villagers, and logs for firewood.

9. Fire Management:

This was the first year of operation under the regional Kuskokwim-Illiamna Fire Management Plan. It is also the first year an Alaskan

Black spruce island in the muskeg area showing typical understory of Labrador tea, lichens and mosses. (June '83 M. Smith)

Muskeg lake with floating sphagnum mats and a raised area of black spruce in the background. This is typical of 75% of the wilderness area. (June '83 M. Smith)

refuge purposely let a fire go. On June 22, a fire was started by lightning in our lower unit. The refuge crew was working on the Koyukuk Refuge at the time. The Bureau of Land Management (BLM) misinterpreted our map and thought the fire was in a "let burn" area, as is most of the refuge, and so did not attack. It was, however, in a full protection area due to its proximity to state land. The fire direction and intensity led us to believe that non-refuge land was not threatened and we decided to let it go. The BLM and the refuge staff monitored the fire with aerial surveys, but let it do its own thing. By June 29, it had burned itself into more moist terrain and was mostly out. By July 5, it was dead. Approximately 16,000 acres were burned. The area of the fire is practically inaccessible since it is not near navigable water or a lake large enough for a float plane and the McGrath BLM Fire Crew Chief estimated the cost of nearly $500,000 if they had attempted to extinguish it. Since the fire burned a black spruce woodland, which is low in wildlife values, the habitat should be improved as a new growth of willow, alder, birch, and grasses begin to grow. Three or four years after a good fire, these burn areas are especially attractive to moose.

A smaller fire on July 22 burned 150 acres of black spruce before it died on its own.

12. Wilderness and Special Areas:

Approximately 1.2 million acres of the lower Innoko Unit is designated as wilderness. The majority of this area is black spruce muskeg, but also includes all the Iditarod and Yetna Rivers within the refuge. Unlike wilderness in the Lower '48, wilderness in Alaska allows the "use of snowmobiles, motorboats, dog teams and other means of surface transportation traditionally employed by local rural residents engaged in subsistence uses".

G. WILDLIFE

3. Waterfowl:

A regional waterfowl workshop was held in Anchorage in March of 1983. At that time, a proposal was made to standardize the waterfowl inventory plans for all interior Alaska refuges. This was done so that these refuges, with similiar migratory bird habitat and populations, would collect acceptable data which can be compiled and used in directed comparisons of one area to another. Inventory plans for spring breeding pair counts and summer brood counts were

As permafrost melts, the tree covered uplands are swallowed by the bog. In other parts of the same bog, a dense floating sphagnum and shrub layer begin recreating a substrate for new trees. (June '83 M. Smith)

Surf scoters as well as black and white-winged scoters prefer the muskeg lakes. (June '83 M. Smith)

adopted. These were patterned after those done in the prairie pothole region. The data collected using these techniques can be used to estimate total breeding pairs and total population, if the entire water acreage of the refuge is known.

Spring breeding pair surveys began June 6. Sixteen transects were completed on the Innoko Refuge, covering 3,340 acres of water. As was mentioned under the Personnel section, the Innoko, Nowitna and Koyukuk Refuge staffs worked together on all three refuges in June. This gave everyone an opportunity to work in different Interior Alaska habitats and added some pleasant comraderie around the camp fire. However, it also limited the time that could be spent on each individual refuge. A larger sample size was needed on the Innoko, as well as the other two refuges, in order to make an accurate breeding pair estimate. The survey on the Innoko, however, is the first waterfowl ground survey to be completed since 1954 and, as such, yielded some valuable information.

The transects were concentrated in the Innoko and Iditarod River drainages, although one area (2b) was surveyed in the upper Kaiyuh unit of the refuge. (See Figure #1) The Refuge Cessna-180 was used as much as possible to get from camp to the various transects. Two refuge boats were also used when the aircraft was not available or for areas close to camp.

The inventory procedures used in this survey attempts to link numbers of breeding pairs to surface acres of water. In conducting the survey, two general types of water bodies were encountered, each having a different waterfowl component. The first is a lake or slough adjacent to a stream or river. These generally blend into a sedge-grass or horsetail marsh and may be forested on one or more sides. A regular nutrient supply from periodic flooding seems to make these lakes more fertile, as evidenced by the lush emergent growth. Ninety-seven per cent of the dabbling ducks and all of the paired geese were found in these lakes. Scaup were the only divers of consequence found on this type of lake, which will be called riverine lakes. The second type of lake is found in the muskeg areas away from rivers and major stream courses. These lakes generally have a thick peat bottom and are edged by floating sphagnum mats, some with ericaceous shrub growth. The high ground near these lakes is generally black spruce woodland with a dense ground cover of lichens and dwarf shrubs. Most nutrients here seem to be tied up in peat, this coupled with the lack of river flood waters seems to indicate an infertile lake system. These lakes have very little bird life compared to the riverine lakes; however, red-necked grebes and scoters were more numerous here and old squaw were found only in this type of lake.

Waterfowl density by lake types is shown in Table #1. Due to the low densities, it seems easier to express density in terms of acres of water per bird, rather than birds per acre. Considering paired geese only, composition of the refuge is approximately 37% white-

This horsetail marsh is typical of others found along the Innoko River. Karen Bollinger's red bandanaed head can be seen above the equisetum as she searches for broods. (July '83 M. Smith)

A favorite brood rearing area for dabblers were drawn down, river connected lakes such as these. The entire light green area was a lake in early June, by late July it is a complex of small ponds and sedge. (July '83 M. Smith)

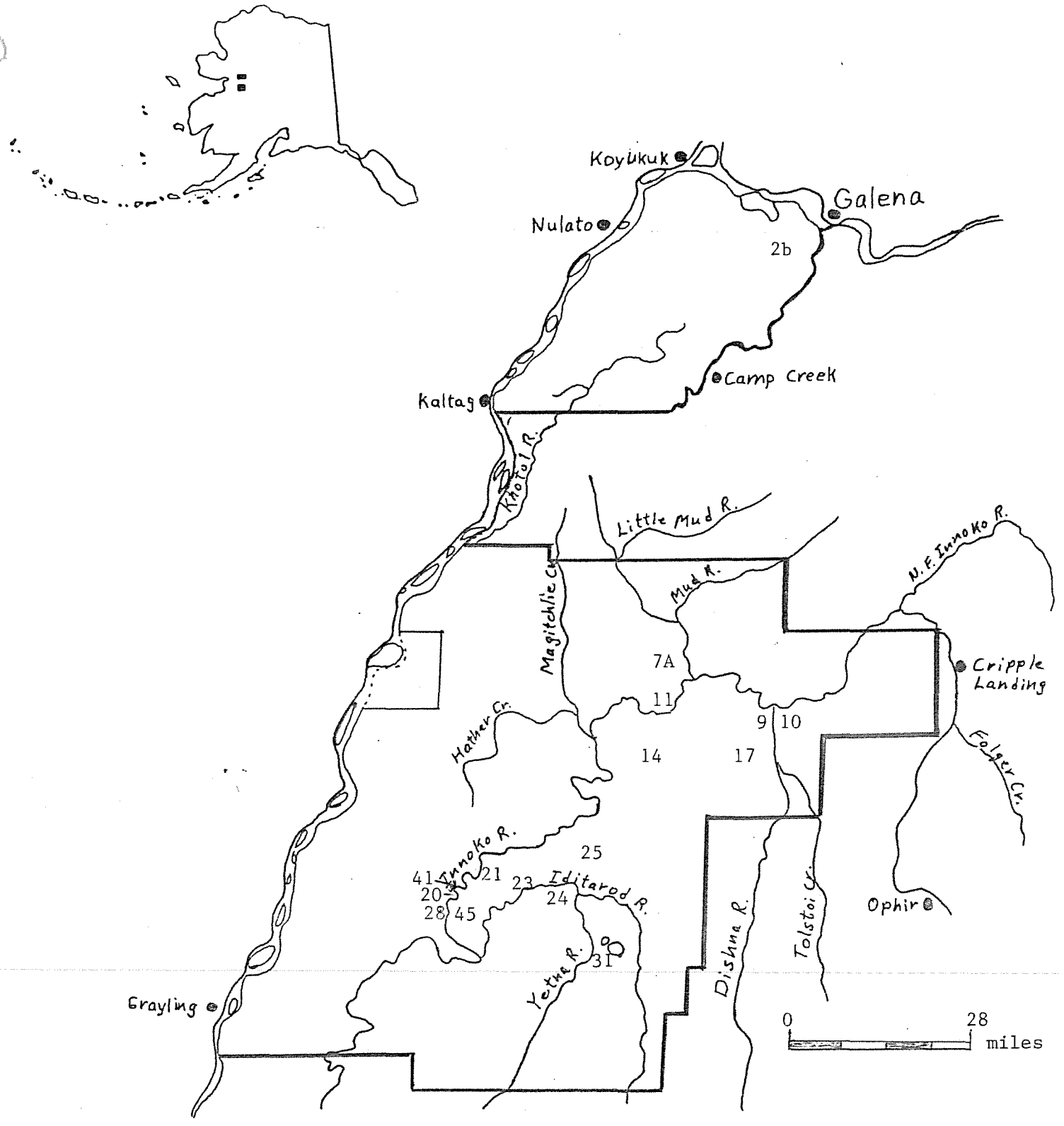

Figure # 1 INNOKO NWR Numbers indicate the location of transects used in Waterfowl Surveys in 1983.

TABLE 1

Acres of water per pair of waterfowl species in two different lake types on the Innoko NWR. 910 water acres in five muskeg lake areas and 2,430 water acres in 11 riverine lake areas were sampled, totaling 3,340 water surface acres.

SPECIES	Acres of water per pair		
	Muskeg Lakes	Riverine Lakes	All Lakes
Mallard	455	106	134
Wigeon	910	66	88
Green-wing Teal	303	90	111
Shoveler	0	57	80
Pintail	303	47	61
*Blue-wing Teal	0	2,430	3,340
TOTAL DABBLERS	101	13	17
Scaup	182	106	119
Bufflehead	455	0	1,670
Common Scoter	83	1,215	257
Surf Scoter	130	0	477
White-winged Scoter	910	0	3,340
Old Squaw	152	0	557
TOTAL DIVERS	28	97	56
TOTAL DUCKS	22	12	13
Whistling Swan	910	2,430	1,670
Canada Goose	0	78	107
White-fronted Goose	0	135	186
Arctic Loon	0	810	1,670
Red-necked Grebe	152	810	371

* One lone drake, no female seen

fronted geese and 63% Canada geese, probably Taverner's geese. Duck composition by lake type is shown in Table #2.

Brood surveys were conducted on the refuge July 19-22 in an effort to estimate waterfowl production and to begin development of a production index. The same areas surveyed for waterfowl pairs in the spring were again surveyed, where the identical route was followed and waterfowl broods identified and tallied. All of the original sample areas were not revisited for brood counts due to airplane problems and a commitment to begin work on the Nowitna NWR on July 23. Because of this, our data is incomplete; however, some useful information was gathered.

Table 3 illustrates the numbers and sizes of duck broods by age class. Pintail broods are most numerous, followed by wigeon and green-winged teal. Shovelers and mallards appear to be under-represented compared to their numbers during the spring pair counts. Only one broody scoter (a common scoter) was observed. This may be accounted for since scoters are late nesters. Table #4 is an attempt to show density of broods and is related only to water acres since that is what was surveyed. As with the pair counts, the data has been separated into the two major habitat types, Riverine and Muskeg.

Ducks, particularly pintails and wigeon, tended to move to brood rearing areas as evidenced by our counts. Sloughs and lakes connected to a river had more broods in July than pairs of the same species in June. The reverse was true of the muskeg lakes, where only six broods were counted on a total of 550 water acres. One hundred twenty-three (123) broods were on 1,545 water acres in the riverine habitat. It could be speculated that the river provides more nutrients and, therefore, the connected lakes are more productive. Those that contained the most broods were of two types. One is a large lake or chain of lakes which, when drawn down by the receding river in summer, turns into hundreds of small potholes surrounded by dense sedge. The other is a large oxbow which, when drawn down, exposes fairly steep mud banks which sprout short green forb-type vegetation.

These latter areas were particularly favored by molting white-fronted and Canada geese. Geese were found either on these types of oxbows or on the rivers, especially the Iditarod River, in flocks of twenty to five hundred. These large flocks made goose brood counts practically impossible to make. The river-connected oxbows will make exceptionally good areas to drive molting geese for banding. Several hundred could be captured at each, during molt. Geese are much more abundant on the Iditarod River and surrounding lakes than on the Innoko River. The Iditarod is less wooded than the Innoko and has large areas of sedge-grass meadow which may attract geese.

Rod King and Karen Bollinger are met by Mike and Phil on the Innoko River in July. Rod and Karen came from the Migratory Bird office in Fairbanks to help with brood counts.
(July '83 Barb Smith)

Calvin Lensink, from Research in R.O., with an Innoko Canada goose. We think they are Traverner's. (July '83 Mike Smith)

TABLE 2

Duck Composition on two lake types on the Innoko NWR. Paired birds only are included here.

SPECIES	Muskeg Lakes (%)	Riverine Lakes (%)	All Lakes (%
Pintail	8	25	22
Shoveler	0	20	17
Wigeon	3	18	16
Green-winged Teal	8	13	12
Mallard	5	11	10
Scaup	13	11	11
Common Scoter	28	*	5
Surf Scoter	18	0	3
White-winger Scoter	3	0	*
Old Squaw	15	0	2
TOTALS	101	98	98

* Less than 1%

TABLE #3

Average Sizes of Duck Broods by Age Class on Innoko NWR. Survey dates - July 19-22.

SPECIES	Class I		Class II		Class III		All Classes *		Total
	No. of Broods	Av. Size	No. of Broods	Av. Size	No. of Broods	Av. Size	No. of Broods	Av. Size	Young Observed
Pintail	1	2.0	14	3.1	19 **	4.7	60	3.9	236
Wigeon	5	4.2	10	4.7			22	4.6	113
Green-winged Teal	2	4.0	5	4.4	3	4.6	21	4.6	87
Shoveler			5	3.8			9	3.6	33
Mallard							1	8.0	8
Scaup	9	6.1	3	3.3			12	5.3	64
Bufflehead			2	3.5			2	3.5	7
Canvasback			1	2.0			1	2.0	2
Total	17		40		20		128		550

* Includes unclassified and grouped broods
**Includes 3 fledged broods

Mike Smith and Cal Linsink identifying some marsh plants.
(July '83 Barb Smith)

Charley Blair and Ted Heuer flushing ducks for pair counts in a marsh along the Innoko River. (June '83 M. Smith)

Table #4- Water Acres Surveyed Per Brood Found in Two Habitat Types on the Innoko NWR July 19-22.

SPECIES	All Areas 2,095 acres		Riverine 1,545 acres		Muskeg 550 acres	
	acres/ brood	# of broods	acres/ brood	# of broods	acres/ brood	# of broods
Pintail	35	60	26	60	0	0
Wigeon	95	22	70	22	0	0
G-W Teal	99	21	81	19	275	2
Shoveler	233	9	172	9	0	0
Mallard	2,095	1	1,545	1	0	0
Dabblers	18.5	113	14	111	275	2
Scaup	175	12	140	11	550	1
Bufflehead	1,048	2	0	0	275	2
Canvasback	2,095	1	1,545	1	0	0
Common Scoter	2,095	1	0	0	550	1
Divers	140	16	129	12	138	4
Total Ducks	16	129	13	123	92	6

Ted Heuer on an upland black spruce island in the muskeg area of the refuge. (June '83 M. Smith)

Two bull moose encountered while conducting brood surveys on an oxbow. (July '83 M. Smith)

4. Marsh and Water Birds:

Red-necked grebes are very abundant on the refuge and breeding pairs were encountered on most lakes. Of the loons, the Arctic was the most commonly observed during waterfowl surveys; however, common and red-throated loons were also present.

5. Shorebirds, Gulls, Terns, and Allied Species:

Prior to this summer, hudsonian godwits had not been reported as breeding in interior Alaska, but they were commonly observed this year while conducting waterfowl surveys. Although no nests were found, territorial pairs were present on most muskeg lakes and several riverine areas as well.

A Ross' gull was sighted in September on the Takotna River by ARM Mike Smith while moose hunting. This is the only sighting we know of this far inland and south in Alaska. It coincided with about a dozen sightings around the Galena area on the Yukon by refuge personnel from the Koyukuk and Nowitna Refuges.

6. Raptors:

No raptor surveys were conducted, but, as with other species, their presence was recorded during waterfowl surveys. Ospreys are said to be rare in Alaska; however, at least one pair with a nest was seen on the Innoko River within the refuge. Harlan's hawk was the most common raptor observed on the refuge this year.

7. Other Migratory Birds:

A refuge bird list was prepared by Mike Smith. The list includes all birds that have been observed on or near the refuge and those that probably occur, but have not yet been observed. Those birds in the latter catagory are marked with an asterisk. This list will be refined as more information is gathered. (See Exhibit #1)

8. Game Mammals:

A moose census was conducted again this year by aerially surveying three twenty square mile quadrats set up in the three different habitat types, i.e. riparian, upland, and muskeg. The surveys were flown December 7 and 8. The moose density in the riparian area where they are most concentrated along the Innoko River, was

EXHIBIT 1

BIRDS OF THE INNOKO NATIONAL WILDLIFE REFUGE - FEB. 1984

UB..Common Loon
CB..Arctic Loon
CB..Red-throated Loon
CB..Red-necked Grebe
UB..Horned Grebe
UB,,Tundra Swan
UB..Trumpter Swan
CB..Canada Goose
CB..White-fronted Goose
*RM..Snow Goose
CB..Mallard
CB..Pintail
CB..Green-winged Teal
CB..Blue-winged Teal
CB..American Widgeon
CB..Shoveler
RB..Canvasback
*RM..Red-head
CB..Greater Scaup
CB..Lesser Scaup
CB..Common Goldeneye
CB..Barrow's Goldeneye
UB..Bufflehead
UB..Old Squaw
UB..Harlequin Duck
UB..White-winger Scoter
CB..Surf Scoter
CB..Black Scoter
*RV..Common Merganser
UB..Red-breaster Merganser
*UB..Northern Goshawk
*UB..Sharp-shinned Hawk
CB..Red-tailed Hawk (Harlans)
*UB..Rough-legged Hawk
*UB..Golden Eagle
UB..Bald Eagle
UB..Northern Harrier
UB..Osprey
RBW.Gyrfalcon
RM..Peregrine Falcon
*RM..Merlin
*UB..American Kestrel
CB..Spruce Grouse
*UB..Ruffed Grouse

CB..Willow Ptarmigan
*UB..Rock Ptarmigan
UB..Sandhill Crane
*UM..Black-bellied Plover
UB..Greater Golden Plover
CB..Semipalmated Plover
UB..Greater Yellowlegs
CB..Lesser Yellowlegs
CB..Solitary Sandpiper
*UB..Wandering Tattler
UB..Whimbrel
CB..Hudsonian Godwit
RV..Marbled Godwit
*UM..Ruddy Turnstone
UB..Spotted Sandpiper
*UB..Semipalmated Sandpiper
CB..Pectoral Sandpiper
CB..Least Sandpiper
CB..Long-billed Dowitcher
CB..Common Snipe
CB..Red-necked Phalarope
UB..Long-tailed Jaeger
RV..Pomarine Jaeger
UM..Herring Gull
UB..Glaucous Gull
UB..Glaucous-winged Gull
CB..Mew Gull
CB..Bonaparte's Gull
CB..Arctic Tern
UB..Great Horned Owl
*RMW.Snowy Owl
CB..Northern Hawk Owl
*UB..Great Gray Owl
CB..Short-eared Owl
*UB..Boreal Owl
CB..Belted Kingfisher
UR..Northern Flicker
UR..Downy Woodpecker
*UR..Three-toed Woodpecker
*UR..Black-backed Woodpecker
UR..Hairy Woodpecker
*UB..Olive-sided Flycatcher
UB..Western Woodpewee

*UB..Say's Phoebe
*UM..Horned Lark
CB..Violet-green Swallow
CB..Tree Swallow
CB..Bank Swallow
UB..Cliff Swallow
CR..Gray Jay
*RB..Black-billed Magpie
CR..Raven
CR..Black-capped Chickadee
*RR..Siberian Tit
CR..Boreal Chickadee
*CB..Arctic Warbler
UB..Ruby-crowned Kinglet
UB..Gray-cheeked Thrush
CB..Swainson's Thrush
CB..American Robin
CB..Varied Thrush
*UB..Water Pipit
CB..Bohemian Waxwing
*UB..Northern Shrike
*CB..Orange-crowned Warbler
CB..Yellow Warbler
*CB..Yellow-rumped Warbler
UB..Blackpoll Warbler
CB..Northern Waterthrush
*CB..Wilson's Warbler
CB..Tree Sparrow
CB..White-crowned Sparrow
UB..Fox Sparrow
UB..Lincoln Sparrow
UB..Chipping Sparrow
CB..Savannah Sparrow
*UB..Golden-crowned Sparrow
CB..Dark-eyed Junco
*CM..Lapland Longspur
UW..Snow Bunting
CB.. Rusty Blackbird
*UR..Pine Grosbeak
*UR..White-winged Crossbill
*UR..Hoary Redpoll
CR..Common Redpoll

ABUNDANCE

C Common
U Uncommon
R Rare

* Not yet observed on the refuge

STATUS

B Breeding. Occurs only in summer.
R Resident. Occurs year around. Breeds.
W Winter Resident. Does not breed.
M Migrant
V Vagrant, casual or accidental

A rare sighting, a white bull moose in an oxbow lake on the refuge. A normal colored moose is barely visible on the edge of the floating vegetation to the upper right of the white moose. (May '83 P. Feiger)

Kevin Ryan weighing a pike, some were as much as 25 lbs. and 47" long. Note that R.O. helper is dressed for insects. (June '83 M. Smith)

only half of the last year's density: .98 moose/square mile in 1983 compared to 1.8/square mile in 1982. Calf production was up slightly; 16 calves/100 cows were counted in 1982, while 21.4/100 were counted in 1983. The lower density is probably a product of the light snowfall this year compared to last. As the snow gets deeper in the mountains, the moose will move down to the rivers where food is more accessible. The areas will be surveyed again in February 1984 to get a better picture and to estimate calf survival.

Hunters removed approximately 65 wolves from the refuge, mostly in February and March. Most of these were taken with a "land and shoot" technique using an airplane on skis. This is done legally under a trapping license in Alaska. Wolf numbers are lower this year as testified to by refuge trappers using steel traps. These lower wolf numbers will benefit the moose calves. Cows and calves spend most of their time in areas near the rivers where wolves are more accessible to trappers, both with and without airplanes. On the other hand, the wolves still have millions of acres of upland wilderness where airplanes cannot land and men do not penetrate. Signs showed that wolves worked brood rearing areas on the lower Innoko River quite extensively. Indications are that they are very succesful at capturing flightless ducks, when the waterfowl can be flushed out of small shallow ponds.

Two wolves were observed from the field camp on the Innoko River this summer for about ten minutes. They were not as wary as we had expected.

11. Fish Resources:

Fish were collected this summer on the Innoko River and several lakes, using a varying-mesh gill net and fishing poles. The fish were measured, weighed, and scales were removed for aging. The scales were sent to our fisheries people in Fairbanks and the information on age has not as yet been returned. Fish collected included pike, white fish, scisco and sheefish. A good number of these were consumed, which saved the refuge a bit of expense for camp food. The most abundant fish are Northern Pike, which are also probably the most important predator on waterfowl, especially flightless young. Pike are found in most of the waters on the refuge except for isolated lakes that are never flooded by a river or stream, or those too shallow to support a winter population. A five pound pike on the Nowitna NWR was caught the week of June 13, with a class I gosling in it's stomach. Pike feeding behavior, i.e. taking anything they can get their mouth around, would make ducklings a prime target. Those pike in our small sample averaged about 8 pounds and 30"; however, some fish went over 20 pounds and 40 inches.

Some of the fish we collected, a sisco at the bottom with a white fish above. The fish were weighed, measured and scales were removed for aging. (June '83 M. Smith)

This 5 lb. pike had swallowed a gosling. Speculation is that the best lure for pike in the summer may be a yellow ball of fluff. (Match the hatch) (July '83 M. Smith)

The fish didn't do all the eating. Here Mike and Phil ready to dive into a sheefish that was roasted over the fire. (July '83 C. Blair)

Mike on the first leg of the nearly 400 mile trip to our camp on the Innoko River. (May '83 P. Feiger)

Pat Wennekens, Environment Contaminants Anchorage R.O., collected water quality samples on the Innoko River on August 8-11. The samples were obtained on the upper Innoko above mining activity and on the refuge below this activity. Pat also collected fresh water clams for analysis at the downstream sampling area. The results of this analysis have not been returned to us yet.

H. PUBLIC USE

1. General:

Public use on the refuge is low; it consists mainly of subsistence hunting, fishing and trapping by residents of Yukon River villages and sport moose hunting in September by local and non-local hunters. On the greater majority of the refuge, there is little to no human activity. While the field crew was camping on the refuge from late May through July, no one was seen to enter the refuge either by boat or aircraft.

Every other year, the Iditarod Sled Dog Race, from Anchorage to Nome, passes through a portion of the refuge. In 1983 the race, held in early March, took the route which crosses the southeast corner of the refuge. We have no problems with this race as the disturbance to wildlife is very minimal. However, for the coming year, promoters in Anchorage are attempting to organize an "Iron Dog" race which would follow the same trail. This is a snowmachine race; the mushers are opposed to it, but it will probably be approved as the BLM - who owns most of the real estate it will cross - have no objections. The Refuge Manager has not been consulted as yet, but would prefer to route this race around the refuge. The route in 1984 will not take it through the refuge if the mushers route is followed, so we will not have to face this until 1985, unless an alternate route is selected.

Four cabin permits were requested from individuals this year and one person was sent a letter notifying him of the need for a permit. Two of these were issued: one for trapping and the other for subsistence hunting. Another permit for 3 cabins will be issued in 1984 when all the needed information is received. The fourth applicant was found to have his cabin situated on land selected by a native corporation of which he is a member and, therefore, needs no permit from us. The fifth individual has not yet produced evidence that his cabin was built prior to the establishment of the refuge, on Decemner 02, 1980, or that there is a subsistence use which would make it legitimate. At this time, 3 cabin permits are active on the refuge.

Typical trappers cabin on the Innoko River. Some of these are under permit, others are on native allotments. (Government low rent housing)
June '83 M. Smith

2. Outdoor Classrooms-Students:

ARM Smith assisted the Iditarod Area School District with a Survival and Environmental Education Class in the village of Shageluk. The Refuge supplied films through our Safety Officer in the R.O. Smith was scheduled to address the class and participate in a survival camp out in late April. An early spring brought unsafe river and lake ice conditions and cancelled the camping trip. This weather also closed the dirt (mud) airstrip for two weeks so that Smith could not participate in the class portion, either.

8. Hunting:

Fifty-nine people reported killing a moose on the refuge in 1983, by returning their moose harvest ticket to the Alaska Department of Fish and Game (ADF&G). Considering that state-wide 70% of all hunters return their harvest tickets, a total of 84 moose, or thereabout, were actually removed from the refuge. This compares with 68 reported successful hunters in 1982, or 97 approximate kills. We have not received this year's tally of unsuccessful hunters from the State, but in 1982, 25% of returns were unsuccessful for the Innoko area. If success rates remain the same in 1983, about 112 people hunted the Innoko this year. The general perception gained from talking with hunters this year would agree that at least 75% were successful.

Additional information gathered from the harvest ticket returns is that 66% of the hunters gained access to the refuge by aircraft and 34% by boat. Most of the subsistence hunters from local villages, using boats, hunted on the lower Innoko River while the sport hunters, who largely fly in, hunted mostly on the upper and middle Innoko River and the Iditarod River.

This information is only for the lower unit of the refuge. The upper unit is in a different game management sub-unit and we have not been able to obtain that information to date.

10. Trapping:

Trappers operate on the refuge without need of a permit. Trappers presently known to operate on the refuge include 3 or 4 individuals on the middle Innoko River, 2 on the Iditarod River and 2 on the Dishna. Trappers probably operate to a lesser extent out of the Yukon River villages and Shageluk, on the Innoko River.

Warm weather and the light snow cover in November and December made marten trapping difficult; since mice are easily caught under these conditions, the marten were not attracted to baited traps. Beaver and otter are abundant but their low price and difficulty in skinning make them unpopular with most trappers.

Approximately 65 wolves were taken under a trapping license in 1983 using airplanes. This legal method involves spotting a wolf in the open where a ski plane can land, landing and shooting it before it gets away. In practice, you normally have to land almost on top of the wolf and be halfway out of the plane before the prop stops. Gunning while still in the air is only allowed under permit from ADF&G. Considering the wolves precarious position in the Lower '48, this may seem a strange trapping method to allow on a refuge. This has, however, been going on for over 30 years and wolves have been able to take the pressure. As long as they have large blocks of wilderness, much of it wooded, where they are relatively safe, they will survive. It is habitat destruction that finished the wolf in the '48.

17. Law Enforcement:

Enforcement work this year concentrated on the moose season, September 5-30. This was our first season with a float-equipped airplane, which allowed us to contact moose hunters. Many were surprised to see an enforcement officer in this area. Not all hunters were contacted due to poor flying weather on some days and a 100 hour inspection that had to be done on the Refuge aircraft on September 19.

Refuge staff worked on several wanton waste cases with the State Fish & Wildlife Protection Officer stationed in McGrath. One case was made. We are concerned that same-day airborne hunting infractions are going undetected. The area is so large that our chances of being there when a hunter lands and shoots a moose are very low. Even wanton waste is hard to catch since the ravens will clean a moose carcass in a matter of days, making it impossible to prove the hunter did not remove the meat. This area has traditionally been wide open with few State officers available to patrol it and no Federal officers prior to refuge status. It is very tempting for a hunter in an airplane to spot and shoot his moose the same day. After all, no one will see him! Our only chance at steming this activity is to show a greater presence so people will think they might get caught. We plan to have a cabin and a fuel cache on the refuge next year so we can stay for a while, rather than flying back to McGrath each day.

Fishing under the midnight sun. (June '83 M. Smith)

Our new aircraft N709 was obtained from Alaska Peninsula NWR in exchange for our other C-180, N716, which was not stressed for floats. This plane was essential to our work. (June '83 M. Smith)

A late moose season opened on the lower unit of the refuge November 1-30. Only 2 hunters that we know of made use of this season; both were unsuccessful. The weather was cold, about 10° F., and the hunters were dropped in a poor area. Rather than searching farther from camp, they opted for their warm homes in Anchorage.

Official notice was given May 4 that the refuge manager was receiving cabin permit applications for those having cabins on the refuge. Notices were mailed to local villages and announcements were put in the local McGrath newspaper and on the local radio. One individual from the village of Anvik has a cabin on the Iditarod River which we suspect was built after the date the refuge was established, December 02, 1980. An application was sent to him, asking that he provide information on the cabin and a similiar note was left on the cabin door. He contacted us by telephone, saying he was on a friend's native allotment (private land), and that it was a trapping cabin. He never returned the application, however. Our investigation has revealed that the cabin is not on a native allotment, nor has it been used for trapping prior to this year. It seems to be a sport hunting cabin which is not authorized by the refuge establishing document (ANILCA). A registered letter was sent to this individual asking again for the needed information. If we receive no answer, or if the information received does not warrant a permit, he will not be allowed to keep the cabin.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement:

In May, we exchanged aircraft with Alaska Peninsula Refuge. We gave them N716 for N709, both Cessna-180s. N716 is not stressed for floats, which we need in order to work on the refuge during open water periods, but N709 is so stressed. Alaska Peninsula has a Super Cub on floats so they did not need the C-180 on floats. Pilot Demientieff picked up N709 and took it to Anchorage where the Office of Aircraft Services (OAS) mechanics fitted it with floats. With floats for the summer and skis for the winter, we can land on the refuge any time except just before breakup in the Spring and just after freeze-up in the Fall.

Mike Smith continuing the trip on the Innoko River in June. (June '83 P. Feiger)

Phil Feiger and Jim Branscom on the Innoko River. Jim is a hunting guide on the upper Innoko, outside the refuge. He volunteered as a water guide when we brought the boats into the refuge. (June '83 M. Smith)

7. Other:

Our aircraft N709 had a right rudder spring break in the middle of our July brood surveys. This grounded us until Rod King (Migratory Birds, Fairbanks) could fly out in his aircraft to help. He removed the broken spring and flew to McGrath where he ordered the part and waited for it to arrive from Anchorage. We were without the airplane for only two days.

The three boats which were purchased in 1982 were brought into the refuge this year for use during the field season. The quickest way to get them in would have been to sling them under a helicopter; the cost of a helicopter, however, was out of the question with our budget. A circuitous route had to be taken. Soon after the breakup in the Spring, Manager Feiger and Assistant Manager Smith ran the three boats approximately 60 river miles up the Takotna River to the village of Takotna. Smith drove the 20 foot boat with an 18 footer stacked inside it, which meant he had to steer standing up most of the way in order to see. Feiger drove the other 18 foot boat. From Takotna, the boats were trucked over about 25 miles of dirt road to the abandoned mining town of Ophir, which is on the upper Innoko River. At this point, Smith and Feiger were joined by Jim Branscom, who volunteered to act as a river guide. Jim has guided hunters on float trips on the upper Innoko for 12 years, so he knows which route to take to avoid ruining a prop or having the bottom of your boat removed. As it was, our stainless steel props were well worn before we finished.

From Ophir, it took three long days to reach our camp on the Innoko, about 300 miles downstream. Bears, moose, beaver, osprey, and lots of waterfowl made the trip very scenic. The trip was a good introduction to the Innoko River and refuge for the staff.

J. OTHER ITEMS

1. Cooperative Programs:

The Refuge Manager was approached by Jeff Stokes, who is with the Subsistence Division of the Alaska Department of Fish and Game, to assist in his subsistence studies through a cooperative agreement. Jeff lives in the village of Nikolai, which is east of McGrath, but also has the responsibility for the villages on the Yukon and Innoko Rivers adjacent to the refuge. He would like to cooperate with the refuge in conducting subsistence use surveys in the villages of Shageluk, Holy Cross, Grayling and Anvik. If we can get funding for this, we would like to cooperate.

2. Items of Interest:

Pilot Jim Demientieff flew the refuge aircraft in support of a search and rescue operation on December 27. He located the downed airplane near Moore Creek, about 20 miles southeast of the refuge. The aircraft was damaged but the pilot and passengers were unhurt.

Assistant Manager Mike Smith attended the Refuge Academy mid-level session in Beckley, West Virginia, March 12 to April 3.

Smith also attended a "Basic Fire Suppression" training course sponsored by the BLM in Fairbanks, Alaska. Although this training was at times interesting, the interagency signals must have gotten crossed. The managers and assistants, who were required to take this training, will not be responsible for direct fire suppression on Alaskan refuges. What should have been offered, and will be in the future, is Natural Resource Officer Fire Training. The Natural Resource Officer works with BLM Fire Coordinator to decide where, when, and how the fire will be suppressed, in order to minimize impact on the environment.

A Law Enforcement Refresher Course was held in Anchorage January 24 to 28. Manager Feiger and Assistant Smith attended, as did all refuge personnel with enforcement authority in the state. We were also able to requalify at this time, using the range in the basement of the Federal Building.

3. Credits:

Sections A through E were written by Phil Feiger, as was the Feedback. All other sections were written by Mike Smith. Marty Branscom typed the material and was responsible for inserting photos and putting it together in final form.

K. FEEDBACK

Change, it seems, is a way of life in refuges. We ride a wave of euphoria (BLHP) knowing full well that hard times are coming (Post Area Office closing RIF's).

Friends and fellow employees move in and out of our careers and lives. People like Charles Strickland pass on and we are immeasurably better people from having known them.

Politics affects the decisions we make and at times we want to weep for the results.

Through all this runs a thread of consistency; the never changing high quality of our fellow workers in the Service. By "Service", I refer to all divisions, not just Refuges, or Fisheries, or Research; and all levels of employees, Clerks as well as Directors.

We are in the process of adjusting to reduced real budgets (maybe more money, but less buying power), fewer FTE's, A-76 reviews and other debilitating decisions. It is especially important now that we all go out of our way to cooperate with and assist other Service employees in their work. None of us has the resources to do all that we would like to do and yet each of us can contribute something to another's program.

We were able to assist Nowitna and Koyukuk Refuges, as they did us. We assisted Habitat Preservation, the BLM, and the State Wildlife Protection Officer. Each time, friendships and trust have grown.

I challange every station in each division to look for ways to volunteer assistance. Do not ask for compensation, for we are all working toward the same goal, but rather ask "Is there any way we, with our limited resources, can help you produce more?" By the same token, do not be shy about asking for help when you need it either. If we will only work together openly and freely, we can get the job done and the personal and professional benefits will amaze you.