Moderator: Dave Spencer, Arctic Environmental Information and Data Center, U. of Alaska, Anchorage, Alaska

Panel Members: Louis Jurs, Bureau of Land Management, Anchorage, Alaska
Sig Olson, U. S. Forest Service, Juneau, Alaska
Dick Hensel, National Park Service, Anchorage, Alaska
Carl Propes, Alaska Federation of Natives, Anchorage, Alaska
Ben Hilliker, Alyeska Pipeline Service Company, Anchorage, Alaska
Dan Timm, Alaska Department of Fish and Game, Anchorage, Alaska
Skip Ladd, U. S. Fish and Wildlife Service, Anchorage, Alaska

SPENCER: As we've gone through the previous panel discussion, it has become somewhat apparent that this discussion will be a continuation of generally what has gone before. It's pretty hard to talk about habitat needs without considering management also, and vice versa. The habitat for the Trumpeter Swan is highly specialized and occupies a very large area of the State, and cuts across many jurisdictions of land. In this panel, we will have representatives of many of the agencies that are directly concerned with the management of the habitat. Carl Propes will be representing the Alaska Federation of Natives, Sig Olson the U. S. Forest Service, Dick Hensel the National Park Service, Skip Ladd, the U. S. Fish and Wildlife Service, and Dan Timm, again, the Alaska Department of Fish and Game, Ben Hilliker, the Alyeska Pipeline, and Lou Jurs, the Bureau of Land Management.

I think we'll start off here with the major land managing agencies. We'll begin with the one that has a dual responsibility for migratory birds and land management - Skip Ladd, who is the Migratory Bird Coordinator for the U. S. Fish and Wildlife Service.

LADD: Thank you, Dave. I wasn't certain what to expect as part of this panel, so I did prepare a somewhat semi-formal presentation, and I will present most of that and hope you will bear with me.

[W. N. Ladd, Jr., USFWS, Anchorage, Alaska. Fish and Wildlife Service programs for Trumpeter Swans with special emphasis on habitat protection.]

The Fish and Wildlife Service is unique among Federal agencies with regard to Trumpeter Swans in that it is the agency responsible for carrying out the mandates of the various international migratory bird treaties with Great Britain (for Canada), Mexico, and Japan. These treaties demand the protection and maintenance of most migratory bird species, including Trumpeter Swans. But neither the treaties nor their implementing legislation provide all the tools necessary to assure adequate protection for the listed species - particularly in regard to protection of important habitats.

The recently ratified migratory bird treaty with the Soviet Union largely remedied the shortcomings of previous treaties by requiring the United States Government to take the maximum possible measures to protect habitats that are determined to be of "special importance" to those species listed in the treaty.

Unfortunately, the Trumpeter Swan is not listed among the species included in the Soviet treaty. This treaty does, however, contain a special provision whereby initially unlisted species can receive the same benefits of the treaty as do listed species if they belong to the same family as a listed species. This may ultimately allow the Trumpeter Swan and its habitat to enjoy the same degree of protection under the Soviet treaty as is afforded to listed species.

Before looking at our Alaskan programs, you should be aware of some of our national direction from which our programs here receive their impetus. The Service has identified five major goals under its Migratory Bird Program. Several of these seem to be especially applicable to Trumpeter Swans.

(1) The first goal of the Migratory Bird Program is to "Prevent any migratory bird species from becoming threatened." While the species that are approaching "threatened" status have not yet been defined, I suspect that the Trumpeter may be a good candidate for this "watch closely" category in view of its relatively low population numbers, high vulnerability, and its restricted range. Designation as "approaching threatened" will depend largely on the destructive pressures exerted upon its habitat, particularly here in Alaska.

In order to achieve this first Program goal two objectives have been established:

(a) Identify by 1982, and annually thereafter, those species that demonstrate unstable or decreasing population trends in any significant portion of their range; and

(b) Initiate plans by 1982 to restore species found to be in critical condition, with special consideration given to preservation of essential habitats and accommodation of species delisted from endangered or threatened status.

(2) A second Program goal is to preserve habitats that are needed to achieve population goals. Two objectives established to achieve this goal are of particular interest to Alaskan Trumpeters:

(a) Identify by 1979 important waterfowl habitats, in addition to those already planned for Service acquisition, that require protection against loss or degradation and by 1980 develop and implement strategies to preserve inadequately protected waterfowl habitats; and

(b) Identify and develop a priority listing of military, Indian reservation, Forest Service, and other Federal lands that have potentially high migratory bird values and by 1980 enter into or amend cooperative agreements with these agencies to adequately protect and manage important habitats.

ALASKA PROGRAMS

So much for national goals and objectives. Of greater interest to this conference are the Service's efforts in Alaska. Let's briefly review the management steps I think are necessary to achieve the ultimate goal of habitat and population maintenance and then relate these to our Trumpeter program in Alaska. The four steps are:

(1) Population enumeration and distribution;

(2) Habitat delineation;

(3) Habitat management and protection; and

(4) Cooperative management agreements.

Population Enumeration and Distribution

Until 1968, Trumpeter Swan studies and surveys in Alaska were very site-specific, primarily in the Copper River drainage and the Kenai National Moose Range (KNMR). Then in 1968, Fish and Wildlife Service biologist Jim King designed and initiated the first extensive survey to determine the population status of Trumpeter Swans throughout their suspected range in Alaska and to establish baseline information by which future population trends could be determined. The survey was repeated in 1975. The population at that time was estimated to be 4,170 birds, a 24 percent increase since the 1968 survey, or an annual increase of 3.1 percent. The Service intends to conduct the Trumpeter population survey at 5-year intervals with the next one scheduled for 1980. If land use changes accelerate the destruction of habitat or significantly increase the level of disturbance of nesting Trumpeters, it may be necessary to increase the frequency of the survey.

Population and production surveys are conducted annually on the only land presently owned by the Service that has a nesting Trumpeter population, KNMR.

As for population distribution, outside of the breeding areas, little was known prior to the early 1970's about the migration routes and wintering grounds of Alaska's breeding Trumpeters. Several hundred had been banded with the traditional metal leg bands, but these produced only a handful of recoveries. As discussed yesterday by Bill Sladen, in 1972, the Fish and Wildlife Service cooperated with Dr. Sladen and the State in a Trumpeter Swan neck-banding program. During the 1972-73 period, 78 Trumpeters were collared and 16 percent have been resighted on wintering grounds from Vancouver Island south to the mouth of the Columbia River, thus confirming that at least part of Alaska's Trumpeters winter as far south as southern Washington. So, in terms of habitat protection for Alaska's Trumpeters, we have to be concerned about land use changes and habitat losses within Alaska and along the Canadian Pacific Coast, in Puget Sound, and the Pacific coastal zone of Washington and, possibly, Oregon.

Habitat Delineation

Once the population has been surveyed and distribution determined, the next is delineation and evaluation of currently occupied habitat. Jim King has accomplished this in conjunction with his periodic population surveys and has located and mapped all known important Trumpeter Swan breeding habitat and determined the relative importance of each habitat unit throughout its Alaskan range.

In addition to the State-wide habitat delineation, the KNMR staff has also located, assessed, and mapped its important Trumpeter Swan habitat, as Bob Richey has already discussed.

Habitat Management and Protection

Once delineated, strategies to protect and manage habitat must be developed. At the present time, the Service controls only a small fraction of Alaska's Trumpeter breeding habitat (about 6%), which is on the KNMR. So, our opportunities for direct habitat management are very limited. In the case of the Kenai nesting area, management of people, rather than manipulation of habitat, seems to be the most important element for managing Trumpeters.

Protection of additional Trumpeter Swan habitat is a fertile field for the Fish and Wildlife Service as well as other Federal, State, and local agencies. As we have heard from several speakers, sweeping changes are now occurring and even greater changes will likely occur in Alaska's future land status and use. Some 105 million acres of Federal land are being transferred to State ownership and 44 million acres are being transferred to Alaskan Natives as a result of Statehood and the Alaska Native Claims Settlement Act (ANCSA). Anywhere from 30 million to 120 million acres of land may be transferred from the public domain to the Forest Service, National Park Service, and Fish and Wildlife Service, as conservation lands as a result of Alaska National Interest Lands legislation. Ironically, nearly 90 percent of Alaska's breeding Trumpeters occur in the four areas that either have the largest human populations, are the fastest growing, or have the highest recreation potential in Alaska. These are Fairbanks, Gulkana or Glennallen area, the Cook Inlet region, and the Gulf Coast-Copper Delta area.

When all the dust settles from the d-2 legislation, probably no more than 13 percent of Alaska's Trumpeter Swan breeding habitat will be under Federal control, with possibly 7 or 8 percent under Fish and Wildlife Service control. Those areas that may be under Service control are the Kenai Peninsula, and parts of Koyukuk and Nowitna River areas. At best these three areas support about 450 Trumpeter Swans, or about 10 percent of Alaska's population. The Copper River Delta area is under Forest Service control. But, that is in question now since it has been proposed for transfer to the Fish and Wildlife Service as a refuge under the House-passed H.R. 39.

We can accomplish habitat maintenance through a variety of methods, such as direct acquisition, conservation easements, cooperative agreements between agencies, land exchanges between agencies, land classification, such as Alaska's new classification of wildlife habitat, and replacement of lands removed from the National Wildlife Refuge System as provided for in ANCSA.

The Fish and Wildlife Service recognizes the need to identify migratory bird habitats that are not adequately protected and maintained and to develop a variety of approaches to insure they are perpetuated. To this end, we are in the process of developing what we call a Habitat Preservation Concept Plan for Alaskan migratory bird habitats. Trumpeter Swans will be one of the featured species in the plan. It will identify and describe important migratory bird habitat State-wide, show land status and pinpoint immediate and potential threats to each area, rank the areas by priority, assess various options for maintaining the habitat, and, finally, recommend one or more alternatives for each habitat unit. We feel this will be the first major step toward maintaining important Trumpeter Swan habitat that is not sufficiently protected as a result of d-2 legislation.

The Service, through contract with the Arctic Environmental Information and Data Center, delineated, evaluated, and mapped wildlife habitat State-wide several years ago. Habitat for all major wildlife groups, including Trumpeter Swans, was mapped and relative density and importance determined. This effort was essentially a synthesis and interpretation of all existing information on populations and their habitat throughout the State. The information was initially designed for use in selecting replacement lands for the acreage selected for transfer to Alaskan Natives from within existing refuges, but it should also be useful for developing future habitat maintenance programs throughout the State. I have here the swan habitat map prepared under the contract. It depicts high, medium, and low density swan habitat and pinpoints "key areas," such as that in the Copper River Delta.

Cooperative Management Agreements

The last item I will mention is cooperative management agreements, an example of which is our agreement with the U. S. Forest Service and State of Alaska for management of the Bering River-Controller Bay Trumpeter Swan Management Area within the Chugach National Forest and adjacent State lands. It is located just east of the Copper River Delta. While the management area is small, it supports some 6 percent of Alaska's Trumpeter Swan population. Under the agreement, the Fish and Wildlife Service is primarily responsible for:

(1) Enforcing migratory bird regulations and surveying populations;

(2) Conducting wildlife research in cooperation with the other parties;

(3) Assisting the Alaska Department of Fish and Game in its waterfowl management activities; and

(4) Providing technical assistance to the Forest Service for waterfowl habitat improvement.

In return for this assistance and that of the State, the Forest Service has agreed to recognize wildlife as the primary resource of the area in their multiple use management plan, to protect waterfowl and other wildlife breeding, nesting, and feeding habitat within this area, and to mitigate any damage to the habitat.

The Fish and Wildlife Service has a long way to go toward fulfilling its obligations under this recently signed agreement. We intend to work toward that end during the coming year. Also, we hope that the area might be expanded in the future to include additional prime Trumpeter Swan habitat in the Copper Delta-Bremner River area. We feel this cooperative agreement is a significant step in the right direction, however, and intend to pursue this type of management cooperation in other areas and with other agencies. It was gratifying to hear Mr. Shively of the AFN [Alaska Federation of Natives] indicate yesterday that at least NANA is interested in developing cooperative habitat agreements with the government agencies.

Wrap-Up

In closing, I would like to leave you with several thoughts. The Fish and Wildlife Service in Alaska has the unique responsibility, in cooperation with the State, for assuring that some 80 percent of the world's population of Trumpeter Swans is protected, managed, and maintained, preferably at their present or even higher levels. While the Trumpeter population in Alaska appears to have increased at an average annual rate of over 3 percent during the past 10 years, there are a number of factors that could reverse that trend overnight. Trumpeters have a low breeding potential and thus lack the resiliency of many other waterfowl species to adapt to or rebound from rapid land use changes, human disturbance, and serious man-caused or natural population losses. Resource development and recreation are being promoted forcefully in Alaska now, and these, with their resultant land use changes, may have devastating effects on Trumpeters. Look, for example, at the former range of this species in the lower 48 and compare it to the present range. I don't want to cry "wolf," friends, but Alaska seems to be facing the same situation that faced the midwestern states a hundred years ago when the drainage of potholes, cultivation of native prairie, strip mining, and general encroachment of man on the semi-pristine breeding habitat of the Trumpeter Swan began in earnest. If we in the Fish and Wildlife Service, the State, other Federal agencies, and the private sector are unsuccessful in our collective efforts to maintain a healthy, thriving Trumpeter Swan population in Alaska, we run the very real risk of this species being listed again as endangered or threatened. I mentioned at the beginning that our legal mandates for protection and management of migratory birds do not carry with them all the tools necessary to do the job. The Endangered Species Act does, however, contain some extremely potent tools to insure adequate protection. Tools for the most part, while essential, cause us all painful headaches, particularly for those Federal agencies whose activities or permit programs affect endangered species habitat and those private individuals who allegedly benefit from Federal development programs. Let's quickly look at some of the implications of listing under the Endangered Species Act.

First, the Secretary of Interior may, by regulation, treat any species as endangered or threatened if it closely resembles a listed species. For example, hunting of Snow Geese in areas where Trumpeters occur, such as southern Alaska and the Puget Sound area, would be a likely candidate for restriction if the Trumpeter was re-listed.

Second, Section 7 of the Act directs that all Federal agencies shall utilize their authorities in furtherance of the Act and shall insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of an endangered or threatened species or result in the destruction or modification of habitat determined to be critical. This is a real mouthful and anyone who has ever heard of the Tellico Dam and the snail darter knows the force behind Section 7 of the Endangered Species Act. Any Federally issued permit, for example, for wetland dredge and fill or road construction, would be subject to Section 7 consideration. Any project receiving Federal assistance, either financial or technical, would be subject to Section 7. Examples of these would be Federal aid wildlife or fish restoration projects proposed by the State, and Federally-funded assistance on Native and Indian lands. Oil and mineral exploration and development on Federal lands and

hydroelectric development requiring Federal Power Commission approval would all be subject to Section 7 scrutiny.

Airspace in the vicinity of Trumpeter breeding areas likely would be restricted, as is the case with Peregrine Falcon eyries on the North Slope. This would greatly restrict fly-in recreational activities in many areas of Alaska. All of the activities I've mentioned hit close to home for Alaskans. In addition to these, private propagation of Trumpeters would no doubt be more restricted than at present.

So, I close by issuing a charge to all Federal and State agencies, as well as to the private sector, that it should be our objective to cooperatively strive to maintain Alaska's Trumpeter Swan population and its essential habitat at a level that is healthy and viable and which has no chance of being re-listed as threatened or endangered ever again. In my opinion, habitat and habitat maintenance is the name of the game.

SPENCER: Fine, thank you, Skip. There are eight of us here, and the time is fairly short, so if we can be moderately brief so that the audience will have time for some questions, we can get through in time. The Bureau of Land Management, of course, has been in charge of a greater land area in Alaska, and although this is going to change in the near future, they'll probably still remain the dominant agency as far as management of Trumpeter Swan habitat. Lou Jurs will cover the management that will apply to the Trumpeter.

JURS: I will be brief, Dave. Another disclaimer -- I'm not a waterfowl biologist, I'm a Wildlife Program Leader for the State of Alaska for BLM. I am a biologist from Nevada by training, but I don't pretend to know anything about Trumpeter Swans other than they're sure pretty when I see them. However, that doesn't bring us to our habitat problem.

The largest block of existing BLM land right now that harbors Trumpeter Swans, and that we're likely to retain after the d-2 situation has cleared the air, is the area colored in dark green that is on the map over there around the Gulkana River area. There is quite a bit of habitat in that area and quite a few birds. At this particular time, here and elsewhere in Alaska, BLM is in the process of undertaking a land use planning effort in which wildlife habitat of all types -- not only for Trumpeter Swan, but for everything else you can think of -- habitat values of these particular species, are plugged into land management matrices and habitat values are considered in making land use decisions. At this particular time, the effort, which occurs in stages, is at the first stage, which is the regional planning effort. At this stage, which is at quite a large mapping scale, you don't really identify on-the-ground management problems, but you do identify those areas within a particular management unit. This particular area happens to be in our south-central unit that is worthy of more intensive management further down the road. Having just come from a planning meeting at the Anchorage District Office with the fellows that are working on this, I know that they have identified within this broad framework plan a habitat management plan for Trumpeter Swans in what we call the Denali area, which lies between the Glenn Highway and Denali, in this vicinity. There has not been an effort on the part of BLM to inventory and identify specific Trumpeter Swan habitat at this time. It has been as an adjunct to other efforts, but we haven't really had the chance, money, or manpower to go out and actually have this as a specific project.

Through the environmental assessment procedures, we're required to consider wildlife habitat values when assessing impacts from competing resource uses. I know of a couple of occasions in our Glennallen resource area where geophysical exploration, for example, for oil and gas, has been either postponed or moved to another area because of Trumpeter Swan nesting. Another problem with this particular area is that it's a very, very popular recreational hunting area. You fly over that country, and there's an awful lot of all-terrain vehicle tracks visible leading out through there. It's pretty popular for moose and caribou hunters. Moose and caribou season opens the latter part of August and there are still birds on the ponds at that time.

I guess about all I can impart any further is that BLM is involved minimally with Trumpeter Swan habitat at the present stage of funding, manpower, and planning. It's pretty peripheral. But as our land ownership patterns firm up and as we get further down the pipe on our specific management directions in land use management, it will get pulled down to tighter and tighter management proposals. I have to leave before the panel gets through with their complete discussion and if it's all right with Dave, maybe we can depart from the schedule to allow me to address any questions, and then you folks can go on.

SPENCER: Any questions for Lou? Yes?

BUCARIA: At one time or another your agency, our agency or service, many other agencies, are confronted with these concept and use patterns. How do you propose to approach resolving the problems relative to swans or some of the other species to get away from this 50 percent problem [see comments by St. Ores, Panel on Management Considerations]?

JURS: Well, it's kind of a standing joke in our agency, and I imagine in others, too. There's managers on one side and there's specialists on the other side. Specialists, of course, provide the technical information to the managers to enable them to make "a good resource management decision." What we attempt to do, of course, is provide information in such a way . . . that when the decisions come down on where they're going to allow roads to be built, or where they're going to build campgrounds, or what areas are going to be set aside for exploration of minerals, that the wildlife values get a fair shake. The real world being what it is, sometimes we do and sometimes we don't.

BUCARIA: Maybe I am premature on this one. Looking at the map scale there and realizing what we work with in terms of this map here and subsequent to the '64 earthquake, and realizing that we're trying to group our mapping capability in Chugach, this seems to be a very basic thing relative to identifying specifically, because if the managers don't have site-specific information relative to this kind of question, we've got a problem. What does the BLM have in mind relative to improving the quality of the documentation of data? Because if we're restricting -- if we are working with small scale maps -- it won't be able to provide the necessary information for decision making.

JURS: One of the things that probably should have been brought up while I was talking about this Denali area -- BLM is involved in a pilot program right now involving the use of remote sensing for, among other things, identifying various types of wildlife habitat based on topography and vegetation, mostly. This is one of three pilot projects, one of which is occurring here in Alaska on the Denali Highway; one's in Idaho in the great basin situation; and the other one in Arizona in the hot desert situation. This is the end of the second summer up there. We are in the process of trying to classify areas, types of habitat, in order to tell the computer what it's looking at. So, on a LANDSAT or a high altitude aerial photo, when it comes by, you ask the computer to tell you what type of habitat you are looking at, and it can tell you. And

one of the things that we are plugging in is trying to identify, number one, the parameters that indicate Trumpeter Swan nesting areas, as well as other habitat areas. We are pretty sure that this analysis via LANDSAT and high altitude color, infrared photography, can tell us pretty much what areas are Trumpeter Swan habitat, just by plugging in water depth, lake shore vegetation, and various things that swans require -- size of the lake, etc. So, when this comes out to be a final product, this will really help. At the present time, we're just doing like you are. A guy flies over an area and sees swans on a lake, he marks it on the map. If he sees young of the year, he marks that on there, too. This is just kind of a catch-as-catch-can situation.

SPENCER: Yes, Bill.

SLADEN: I have to ask a naive question -- I get confused enough in my own State of Maryland with all the Federal agencies. Does the BLM have a positive program with the State and U. S. Fish and Wildlife Service? Because you didn't mention it and Mike Smith didn't mention it this morning. BLM has never been mentioned, and your name was listed.

JURS: I'm sorry. We live with it every day and it just probably slipped my mind. Yes, we are not only required by regulation and policy, we also have Memoranda of Understanding and Cooperative Agreements both with the State and the Federal fish and wildlife management agencies, and specific instances with Forest Service and other agencies as well.

SLADEN: So you're working very close with the State and with . . . .

JURS: The field people, especially at ground level -- we work quite closely with each other. Thank you.

SPENCER: Any more questions? Now, we'll hear from Sig Olson with the U. S. Forest Service. Sig has been leading their wildlife program for many years. They're concerned with quite large areas of habitat here in Alaska, the two large national forests, which include both breeding habitat and wintering habitat for Trumpeter Swans. Sig.

OLSON: Thank you, Dave.

[S. T. Olson, USFS, Juneau, Alaska. Providing for Trumpeter Swan habitat on National Forest lands in Alaska.]

One of the most important resource values on Alaska's National Forests is the wildlife and its habitat. With the exception of a few species restricted to the far north and the arctic portions of Alaska, almost every species of wildlife native to Alaska is found on National Forest lands. We are fortunate, indeed, to count the Trumpeter Swan among these. Southeast Alaska hosts a few wintering groups at several locations such as the Sarkar and Sweetwater Lakes on Prince of Wales Island and Mitkof Island near Petersburg. Areas such as the lower Stikine River, Duncan Canal, and Rocky Pass are utilized during migration periods. A small number of breeding pairs utilizes the lakes and ponds of the Yakutat forelands. None of these areas in themselves is very extensive. They are, however, collectively very important because they represent a segment of that tenuous thread of distribution which ties the various populations together along the west coast of Alaska and British Columbia. The most important Trumpeter populations on National Forest lands occur, however, in the vast coastal delta marshlands of the Controller Bay-Copper River Delta area. Here, approximately 16 percent of all Alaska's Trumpeter Swans, or some 680 birds, summer. Of the total number of swans found along the coast of the Gulf of Alaska, about 79 percent occur on National Forest lands. It is very apparent, then, that the Forest Service has the important responsibility of ensuring the continued welfare of this outstanding species.

Although, at first glance, the occurrence of the swans themselves seems to be the salient feature, in reality it is their habitat that is of basic importance. How well or poorly their habitat is managed is key to the continued existence of Trumpeter Swans as a viable, thriving component of the wildlife spectrum of the western states, Canada, and Alaska.

The Forest Service is charged by Congress with the management of all the natural resources found on National Forest lands. Primary among these values is wildlife habitat. Our stated objective is as follows: "to maintain and develop suitable habitat for wildlife and fish by coordination with the management of other National Forest resources, and directly by specific improvement projects. Threatened, endangered, and sensitive species will receive highest priority." To obtain this objective, the following selected policy statements illustrate the intent of the Forest Service:

1. Determine, after full consideration with the states, the location and extent of developments of habitats needed for fish and wildlife species.

2. Develop and maintain wildlife and fish habitat through (1) coordination with all other uses of the land or water; (2) mitigation of significant damage, no matter how caused; (3) prevention and abatement of pollution; and (4) direct cultural practices.

3. Maintain wildlife and fish populations in balance with habitat capacity to preclude habitat and other resource damage.

4. Carry out direct wildlife and fish habitat improvement measures in such a manner as to preserve or enhance the esthetics and quality of the environment. . . .

5. Full consideration will be given to the management and habitat needs of small game and non-game wildlife species. Ecological niches for all species present or potential to a given area will be maintained unless some overriding conditions dictate otherwise.

The care and feeding of Trumpeter Swans, however, involves much more than stated objectives and a set of policy statements. Although the Forest Service has the responsibility for managing wildlife habitat, we do not have the authority to manage the swans themselves. This falls under the jurisdiction of the Fish and Wildlife Service. In addition, this responsibility is shared with the Alaska Department of Fish and Game, who are also concerned with the management of waterfowl populations within the State.

Thus far I have referred only to management of the Trumpeters and their habitat. Management programs are only as good as the knowledge used to carry them out, thus the need for an information base is of vital importance. This needs constant updating in order to accommodate changing conditions and situations which face any resource manager. The need, then, for a research effort is most apparent to provide not only basic data but a continuum of new information.

At this point, the question must be evident: "What, then, is the Forest Service actually doing to put all the fine sounding phraseology to work toward the business of providing for Trumpeter Swans?"

First, a bit of history is in order to provide a little perspective relative to Trumpeter Swans and Smokey Bear! Prior to 1970, the extent of our knowledge was that Trumpeters were pretty rare -- we had some in Alaska and were lucky to have a few birds wintering in southeast Alaska. It was always a treat to see a small flock of swans in Blind Slough near Petersburg or Sweetwater Lakes on Prince of Wales. We knew there were some swans on the Copper River Delta, and nearby areas, but nobody really knew how many or where they were. Consequently, a swan sighting was an important event. Nevertheless, there was a growing feeling that something positive should be done to assure their future. Each passing year Forest Service personnel turned up more evidence that the Copper River Delta was perhaps one of the more important waterfowl areas in Alaska and that Trumpeter Swans occurred there in significant numbers compared to elsewhere. This was bolstered by the observations of people like Mel Monson of the Fish and Wildlife Service, who discovered Trumpeters on the lower Bremner River, Jim King and Hank Hansen of the Fish and Wildlife Service, and Pete Shepherd of the Alaska Department of Fish and Game, who did some of the early swan surveys and studies on the lower Copper River.

It was becoming obvious that the Forest Service had inherited some significant responsibilities and that unless it did something tangible, an important segment of the small population of swans, at this point believed to be endangered, could at some point in the future be in jeopardy.

This little vignette thus brings us back to the question: "What exactly is the Forest Service actually doing for the management and conservation of the Trumpeter Swan on National Forest lands in Alaska to date, and, perhaps more importantly, what will happen in the future?

As mentioned earlier, the occurrence of Trumpeters on Alaska's National Forests has always merited special attention. In areas of high use and relatively high numbers some significant actions have been undertaken. In southeast Alaska on the Tongass National Forest, where swans occur in limited areas and small numbers, management opportunities are also limited.

On the Chugach National Forest, where significant breeding populations occur, it is a different story. The Copper River Delta Game Management Area was designated to protect the only known breeding grounds of the Dusky Canada Goose and the existence of one of the largest known concentrations of breeding Trumpeter Swans in North America. This 330,000-acre special management area was created in 1962 when the Forest Service, the Alaska Department of Fish and Game, and the Alaska Department of Natural Resources signed a cooperative agreement which recognized wildlife as the primary resource. No other land uses would be permitted which would jeopardize or damage in any way the primary wildlife resource values. Any resource uses permitted would be coordinated in such a way that the habitat, particularly waterfowl habitat, would be protected or improved. To this day, this has been the guiding principle in the management of this area. As stated earlier, a good data base is necessary to assure accomplishment of a proper job of management. Accordingly, the Forest Service has fostered a variety of studies, surveys, and research projects by various agencies and universities over the years. Not all of these have been aimed primarily at the Trumpeter Swan. Many featured other waterfowl species, such as the Dusky Canada Goose. Most of them, however, are concerned with the ecology of the area and, in particular, the effects of the 1964 earthquake which has had dramatic ecological consequences on habitat. All these studies directly or indirectly provide knowledge which will assist the resource managers of the various agencies to do their job.

At the present time, John Thilenius of the Forest Service's Pacific Northwest Forest and Range Experiment Station is initiating a comprehensive research program on the Delta which will provide insight into the basic understanding of the structure and function of the ecosystems of the Copper River wetlands. Basic knowledge of what the wetlands are like, what they produce, and how they function will be a primary objective. Understanding these wildlife-environmental relationships and processes will provide the basis for evaluating unplanned events, both natural and man-caused. It will also help determine the necessity and/or feasibility of habitat manipulation and the evaluation of the effects or benefits that may result. The results of this effort will be combined with complementary research, surveys, and studies by the Alaska Department of Fish and Game, the Fish and Wildlife Service, and others on wildlife species and their habitat.

Wetlands biologists on the Chugach National Forest, in cooperation with the Fish and Wildlife Service and the State, are obtaining annual spring population (breeding pair) counts and production surveys on National Forest areas to assess the status of the swan populations. This information will be used in deciding on possible boundary changes in management plans. Detailed contour maps are being developed to better understand the effects of natural and man-caused events on the Copper Delta and Bering River areas.

In the mid 1960's, Jim King became convinced there were more swans in Alaska perhaps than previously believed based on reports from various observers as well as his own wide experience. In 1968, he conducted an extensive survey which revealed the existence of significant numbers of Trumpeter Swans along the coast of the Gulf of Alaska. It became apparent with the increasing resource development activity along the coast that important Trumpeter Swan habitat would be threatened. Accordingly, the Forest Service, the Alaska Department of Natural Resources, Alaska Department of Fish and Game, and the Fish and Wildlife Service established the 168,000-acre Bering River-Controller Bay Trumpeter Swan Management Area in 1978 under the terms of yet another cooperative agreement very similar to the earlier Copper Delta agreement. The primary emphasis, however, is on the Trumpeter Swans and their habitat. A comprehensive plan will be developed to provide the basic research, surveys and studies, and management framework of wildlife sharing the same habitats.

Thus far, I have described what is being done on special management areas. Trumpeter Swans, however, occur elsewhere on National Forest lands in smaller numbers, in sometimes very localized situations. What of these?

Under the present method of land use planning on National Forests in the Alaska Region, the land areas are divided into resource units based generally on ecological similarities and drainage characteristics. Prior to conducting any land uses in an area, the resource values are identified. Interdisciplinary teams then determine the possible impacts or effects of proposed land uses on the various resource values. Recommendations are then made to assure that adverse effects are prevented or minimized to the extent feasible. In some cases, there are recommendations precluding any development activity in

certain areas. Thus, even those small scattered groups of Trumpeter Swans mentioned earlier are the subject of special coordinating measures which assure their continued welfare. The areas utilized by swans are identified and measures specified to protect their habitat and control disturbance when necessary. These situations are handled on a case by case basis and few problems have developed. An example of protective measures employed is the relocation of a road to minimize disturbance.

The Stikine Wildlife Management Area, a 17,000-acre unit, located on the mainland on the Stikine River Delta, provides nesting and feeding habitat for migrating waterfowl each spring and fall. This area is supplemented by the Rocky Pass and Duncan Canal areas on Kupreanof and Juiu Islands. While these are not designated management areas such as the Copper Delta and Stikine, their extremely high wildlife values are recognized.

Summary

National Forest lands in Alaska provide important breeding, nesting, feeding, and wintering habitat extending from Southeast Alaska through the coastal wetlands of the Gulf of Alaska.

Forest Service management objectives provide for the protection and maintenance of wildlife habitat. Policy dictates that habitats will be identified, protected, and maintained through coordination with other uses.

In those areas, such as the Gulf coast, where 79 percent of the Trumpeter Swans are found on National Forest lands, special management areas have been established in cooperation with the State of Alaska and the Fish and Wildlife Service. Here, Trumpeter Swans and other waterfowl are the primary values recognized. Elsewhere in the Alaska Region where swans occur locally, special provisions are included in land management planning to provide for the protection necessary to assure that their continuing use of these lands is not impaired.

Further, management of swans and their habitat is done in cooperation with both State and Federal agencies. A strong Forest Service research program is being developed along with surveys and studies by other agencies to upgrade the data base vital to effective management.

It is my belief that the future of Trumpeter Swans on National Forest lands in Alaska is assured.

SPENCER: Thank you, Sig. We'll call next on Carl Propes. Carl is a land manager for the Chugach Native Association, and he'll be speaking for the Alaska Federation of Natives, I understand, which necessarily includes a very wide range of interests in the management plans.

PROPES: Thank you. I want to say first that I very much appreciate the opportunity to be here. I'm, as Dave mentioned, working primarily with Chugach Natives, which is one of Alaska's 12 regional profit corporations set up under the Settlement Act. However, I have also been selected by the Alaska Federation of Natives to be here today, because I think they recognize that it's the Chugach region in which such a large percentage of Alaska's Trumpeters occur down at the Controller Bay/Northern Gulf of Alaska area. And also because Chugach, in a lot of areas, has really been the front runner in at least conceptualizing how Trumpeters and other sensitive species and habitats will be managed once the lands are conveyed to the Native corporations in Alaska.

The first point I'd like to make is something that, I guess I should say, angered me a little bit. I haven't been here for much of your convention, but I've heard several people refer to lands being transferred out of Federal ownership and into private ownership here in Alaska, lands which are prime habitat for Trumpeters, as a loss of some kind. Or, at least I've gotten the feeling that the protection that they'll be afforded under private ownership will be somewhat less than under Federal ownership. Well, on the one hand, I don't want to at all degrade the efforts of the Fish and Wildlife Service and the Forest Service and others who are presently managing Trumpeter habitat. I think the Native corporations in Alaska at least deserve a chance as land managers of Trumpeters. It's sort of cliche-ish to say it, but of course the Natives have been managing Trumpeters for much longer than any agency now managing them in Alaska has, and they are on the up and up. And our people, at least, have never subsisted off of Trumpeter Swans. They've never hunted the Trumpeters purposely. From what I'm told, they're not very good eating, which I guess is really the reason why. And I don't know if any subsistence hunting of Trumpeters does occur elsewhere in Alaska. It doesn't that I'm familiar with.

I don't have much of a speech to give, except to really enlighten you to some of the facts that we're aware of when we face the future task of land management. Primarily, and I'd be kidding you if I did not tell you, the regional corporations especially will own lands and their resources as an economic asset. We hope to be able to list them on our balance sheet as valuable assets of the corporation, hopefully the most valuable -- and it's only the commodity resources of the land that will make them that valuable. So, it would be naive for me to say that we will manage all of the lands primarily for their noncommercial resource values. That's not true. I think most corporations in the State, once they receive their lands, will examine them for development possibilities, and I can tell you what the results are going to be. Probably 90 percent of the lands will not have commercial possibilities, certainly not at the present and certainly not for some time. So, then we get into some kind of other dominant land management regime. And in doing that, Chugach [Natives] certainly recognizes that we're not competent wildlife and waterfowl land managers. We don't have the experience, and as a profit corporation, we can't justify going out and hiring a team of biologists. However, since that is the dominant aspect of the land, we certainly will call on all the agencies that have been involved in that sort of management in the past. And in the few short years that we've existed, we've set a good record of this. I would echo what John Shively told you yesterday, that while we are not involved in cooperative management agreements as of yet, at least cooperative management agreements per se, we certainly will be in the future. It was the Native corporations, or at the urging of the Native corporations that the land bank concept was included in d-2 legislation now before Congress. And Chugach for one certainly intends to make use of that, affording the day-to-day management of its prime wildlife habitat to the Federal and State land management agencies that have the expertise in that field.

Getting down to the specific area of the Bering River/Controller Bay/Northern Gulf of Alaska habitat -- some of you may be familiar with it, but probably most of you aren't -- we ("we" meaning Chugach) now have a series of amendments before the U. S. Senate that would perpetuate a land trade between the Federal government, the Forest Service, and our corporation deeding over a maximum of some 56,000 acres of land in the Bering River coal field area to our corporation. That is primarily the reason why I am here before you today, because we have been warned that there could be opposition from waterfowl interests

and others to us receiving that land, and we don't feel that any opposition of that sort is called for. So, I'm kind of here to clear the air. There are two specific examples in Chugach's history that I can point to that indicate that we do know the difference between "good" and "poorly" in management. One of our village corporations had the opportunity to select lands in the Copper River Delta Game Management Area, up to 70,000 acres of land there. But that corporation, which exists in the community of Cordova, elected not to take any land because it recognized that that particular land could be managed better under public ownership. Secondly, in the amendments that I mentioned that are now before the United States Senate, we have offered to enter into cooperative planning for the lands that we would obtain under the amendments so that no development of coal fields or any other of the commercial resources of those areas could be undertaken until a plan is developed that's mutually acceptable to the Fish and Wildlife Service and the Forest Service, the State of Alaska, and ourselves. So, in our estimation that will protect the area very well. And even if we had the inclination to develop it in a manner that was not beneficial to the Trumpeters and other waterfowl species there, that we wouldn't be able to do anyway. That's all I have to say.

SPENCER: Thank you, Carl. Ben Hilliker, as many of you know, was in a major management role in the Department of Fish and Game for many years, and for the last 7 years or so has been with the Alyeska Pipeline Corporation. It's not very likely that there are many Trumpeter Swans right on the pipeline, but it has gone through a great deal of Trumpeter Swan habitat, and I imagine the consideration for its protection has occupied Ben's attention considerably. Ben.

HILLIKER: Thank you, Dave. Jim King may in fact be the leader or whatever of the Alaska Trumpeter Swans, but I can assure you he's also persuasion personified. Last Monday evening, I was enjoying myself at home and he suddenly reminded me after being Outside [out of the State] for a business trip and a few short days of vacation, that I was to serve on a panel, and with that in mind, I'm on the panel today. I didn't have the benefit perhaps of the forewarning that some of the others had, but Jim, I'll try to do my best for you and hope that what I have to say may be of benefit to the rest of you here in the audience.

As Dave has said, I've been with Alyeska for the last 7 years. I've been in the capacity as environmental coordinator, biological coordinator, what have you. Prior to that I was with the Alaska Department of Fish and Game, and in preparing over the last couple of days for this panel, I kept looking at the paper about habitat, providing for habitat, and it's been very difficult to try to extrapolate or to make something meaningful to you relative to Trumepter Swan habitats as associated specifically with my efforts the last 7 years with Alyeska Pipeline. But, be that as it may perhaps just some comments about Alyeska and what we were involved in, where we're going, what we plan to do -- maybe with your expertise, perhaps you can figure out exactly how our efforts will relate to Trumpeter Swan habitat.

Early on in any project, and primarily with our project, you're involved in these days and age with environmental problems, the National Environmental Policy Act -- and in this context, and as you know, there was developed a rather extensive environmental impact statement involved with the Alyeska group -- planning and design, mobilization of logistics, construction, etc., etc. I would like to comment that during the design review stage, when Alyeska was involved, after going through preliminary design and looking at a route across Alaska from Prudhoe Bay to Valdez, the planning and design was then subjected to what I would consider very intense government scrutiny, both on the State level and certainly the national level. At that time, many of the habitat considerations, as far as route selection and how we were going to go about things, gave us an input and the benefit of the agencies to review what we particularly had in mind.

To re-familiarize you, Prudhoe Bay was discovered (the oil field) in 1968, estimated reserves on hand or in the ground, about 9.6 billion barrels. There were several geological features that would be involved with the Trans-Alaska Pipeline route selection. Earlier and preceding that, if you'll recall, there was the Manhattan Tanker Project determining, attempting to determine, the feasibility of tankers using the Northwest Passage. That was dropped. Got back to the selection of a pipeline system across the State -- looking first of all for an ice-free port, recognizing you had point one picked with your oil field, the best route, the various routes that you could take to an ice-free port. Cook Inlet has had an oil development here since 1957. There's tanker traffic in and out of Cook Inlet, but in the wintertime, as we all know, there are considerable problems associated with tanker traffic in and out of there, dealing with pack ice and that sort of thing. Valdez was eventually picked as the most logical place. It has an excellent port. Therefore, we had a site on the North Slope, we had a site on the bottom, and in between we started with our route selection . . . talking about going through Anaktuvuk Pass as an alternate, coming through Dietrich as an alternate, but the one that was finally picked, the Yukon River crossing -- attempting to find the most optimum location on the River at which to cross. Certainly, the Yukon Flats and the waterfowl population -- the Rampart Study provided a lot of basic information as to what exists there. Downstream, in the area of Hess Creek, picked a particular location there. It passes then through the Alaska Range and the Chugach Mountains on into Valdez, Thompson Pass, obviously, right outside of Valdez. Following the Richardson Highway, which extends from Glennallen down to Valdez and subsequently on up to Fairbanks, gave us the logical points at which to pinpoint our pipeline route.

At this point in time, when we started talking specifically about a route, about a location, is when a lot of the input from the agencies came about -- as I mentioned before, State and Federal agencies, some type of input as to areas to look out for. I could mention a few of them. We were told specifically about the Peregrine Falcon areas at Franklin Bluffs, at Sagwon; the dall sheep lamb areas in and around the Brooks Range near Chandalar Shelf; more Peregrine nests down in the Delta area; the caribou migration routes up from the Porcupine Herd to the Arctic Herd; the Nelchina caribou herd, which our pipeline route definitely crossed. And, I shouldn't go on without mentioning the fisheries -- fish streams. Our pipeline route follows generally the flood plain of five major river systems in Alaska and also crosses, I think, about 400 streams of various sizes all along the route. After that input was received, we got some better ideas of one of the original routes we had selected. We were talking about going through Atigun Canyon. For biological reasons, the dall sheep and the lambing areas, we routed the line outside of the Canyon. There was the problem that you're aware of at this pump station location, Pump Station Two was subsequently moved to make sure there was no Peregrine involvement, and some other route evaluations [were considered] as far as proper alignment for the finished pipline. Again, at that time, a lot of the habitat considerations we received from the agencies.

The planning and design stage, further into that, another area for input from the agencies, we talked about one of the major problems associated with the line. We're talking about hot oil pipeline -- oil produced at Prudhoe Bay from about the 10,000-foot level coming out of the ground at about 180° to 190° F. Being produced through permafrost and during its transportation from Prudhoe Bay to Valdez, we're only going to lose 50° to 60°. So, we're talking about 110-degree oil at various locations along the line -- nearer to Pump Station One, of course, higher temperatures.

Draw yourself a line across Alaska, about the area of Glennallen, and you start getting permafrost. The permafrost, and the conditions associated with permafrost, led to the design and the eventual construction practice of elevating approximately half the line, the half of the line at interrupted areas across the State till we get about into the Nelchina Basin. From there on south, the line is pretty much buried below ground. The above ground pipeline [was placed] on vertical support members -- those of you old football players, it's a goal post, sort of an "H" design configuration with a Teflon shoe on the top. The pipe is put in a clamp that allows the pipe to slide back and forth on the horizontal support member. The line itself going across the landscape is laid out in a trapezoidal design which allows for heat extraction and expansion of the pipeline. In going through and getting the design ready, getting the pipeline route picked, a number of the animal considerations, the critical habitat, I think we had a panel on that earlier this morning, a lot of these things started coming out. Data were collected and analyzed and developed to make sure that the design and subsequent operation construction of the pipeline when we got done were going to take into account as many of those critical situations as at all possible.

I believe there was a mention made earlier about the sea bird efforts as part of the agreement and grant of right-of-way that Alyeska did receive from the Interior Department and from the State of Alaska. Part of the efforts, joint Fish and Wildlife, were additional studies. I believe some of those studies involved sea birds on the coast tanker routes from Valdez to the south 48 and beyond.

Certainly, the design review, planning, the logistics, the mobilization of the project, required a lot of time, a lot of effort. We were 5 years in the construction. For those of you who like figures, the latest figure projected is a cost of about 7.8 billion dollars, and of that 7.8-billion-dollar cost figure, it's estimated that about 10 percent has been involved in environmental parameters, answering environmental questions of one kind or another. So, roughly 780 million dollars of the 7.8 billion has been involved in environmental questions of one kind or another. Now, with the pipeline in operation, producing approximately the designed 1.2 million barrels of oil per day, certainly the habitat considerations have not gone away.

One of the things that I'm involved in now is [habitat] restoration -- putting the pipeline system to bed. What Alyeska requires across the State is roughly a 54-foot wide right-of-way. The construction of the pipeline with the camps, the airports, etc., involved about 50 or 60 square miles. The pipeline itself, including the terminal during final operations when the line is in its final operations mode, will require as I recall about 15 square miles.

One of the ongoing projects is oil-spill contingency planning. I have brought, if you are interested, a copy of the General Provisions of the Alyeska Oil Spill Plan. The Alyeska Oil Spill Plan considers three sections, Port Valdez, the pipeline, and the outer Prince William Sound area. These are the general provisions of those three sections. If you're interested, I would encourage you to come take a look at it. In addition, the pipeline section itself, inasmuch as there are 12 pump stations from Prudhoe Bay to Valdez, we broke down the area between the pump stations into section plans. The section plans specifically go back, absorb much of that data we received earlier on critical habitat areas, fish spawning locations, and with those data, we came through and put containment sites, potential places for oil to go. This was done on a foot-by-foot basis throughout the sections. With this plan, the person in the field, if he knows precisely where a pipeline break has occurred, could go to that location and with the book, or at least by having someone in a pump station, as an example, directing him from the book, he could say, "At that location you've got nine highway culverts that could be blocked; you've got a containment site on the Tequel River 4 miles to the south; you've got an additional containment site 4 miles further south than that; your cleanup operation involves the following things; and your critical environmental questions are as follows." And those are all detailed here in this plan.

I don't think I can say too much else. I would like to thank Jim [King] for the opportunity to be here. It's good to see many of the old faces that I worked with in the waterfowl program, and certainly I'm sure that what I've said has stimulated questions and I'll be more than happy to answer them if I can.

SPENCER: Fine. Thank you, Ben. We'll next hear from Dick Hensel. Dick's a biologist with the National Park Service. I do know that he hasn't been over there very long, but I can assure you he's been in Alaska quite a long time, and that he knows a great deal about the State and its habitat. Dick.

HENSEL: Thank you, Dave. That's true I haven't been with the Park Service all that long; it's a grand total of 4 weeks. I hardly qualify as an expert on Park Service planning or policy, but nonetheless I'm happy to be here. I'm filling in for Jim Larson who was called back to Washington, DC, recently.

My comments will be brief due to the fact that existing park lands in Alaska contain no swan populations. As a consequence, there is no management plan or policies per se covering the Trumpeter Swan. Given the passage of d-2 legislation, I'm sure this is going to change, because we anticipate acquiring lands that offer good Trumpeter habitat, in the McKinley area, specifically the north and south extensions, as well as the proposed Wrangell Park. I would certainly think that policies will evolve that will at least cover two aspects, one of which would be a very detailed gathering of population data on these areas, and secondly, a policy that would concern regulations governing recreational uses. This I think would be pretty much predicated on what the U. S. Fish and Wildlife Service has found on the Kenai National Moose Range where there has been some instances of conflict. I would think that the Park Service would take the stance that recreational activities would be prohibited on areas that are supporting nesting swans. I recall the question that Dan Timm posed earlier concerning the establishment of a population goal, and perhaps as a sequel I might pose this question. I would certainly think that somewhere along the line we need to address what the habitat can support. I think therein we would have the parameters by which we could certainly arrive at population goals or the desired population model. This is about all I have, Dave. Thank you.

SPENCER: Thanks, Dick. We started off with the agency that has a dual role in managing land and also in managing wildlife, and we'll finish up with another such agency, the Alaska Department of Fish and Game. They are vitally concerned with everything that all the other land management agencies do on their habitat, because that's the way they pursue their program. So we'll hear frm Dan Timm, now.

TIMM: Again, Dave, very brief -- said much of what I intended to say in the last session. The Department of Fish and Game mainly manages the animals, Department of Natural Resources primarily manages land, the exceptions are perhaps refuges, critical habitats. We've got about a million acres in critical habitat and refuge where Trumpeter Swans occur either in nesting or migration staging. In 1975, there were 83 Trumpeters on those areas. I mentioned the Redoubt Bay area across

from the Kenai as a possible refuge in the future, or at least we're trying to get it. There were 141 swans on that area in 1975. So, we're talking about something like 225 swans on areas, quote-unquote, "controlled by Fish and Game." We've said many times, 60 to 87 percent of the Trumpeter Swans are going to be on lands owned by the State after d-2 is resolved. I can assure you that Fish and Game will do what it can to insure that Trumpeter Swans get their fair due in the future.

I'm glad you waited till after 4:30. I can introduce this resolution as a member of the public rather than the department. I'm not even going to read it. I'll give it to Dave or Ray for consideration tomorrow, but basically it would be from the Society to both Fish and Game and the Department of Natural Resources recognizing many Trumpeters occur on State lands, are of national, international concern. Some of the things that I talked about on the disturbance and cabin situation are in there, and just asking the State to consider the Trumpeter Swan in making land-use decisions. Also, in the future, it might be desirable for the Society to comment on, for example, this Redoubt Bay Refuge Bill. Perhaps a resolution could go to the State Legislature, but I think when the time comes we'll have to judge the situation because right now the legislature is kind of paranoid about hampering from the Outside, so to speak. It might do more harm than good in some cases, but it is certainly a possibility for the future. That's about all.

SPENCER: Thank you, Dan. We have time for a few questions now. It's getting late in the afternoon. One thing does occur to me here in looking over this panel -- there is one land managing agency that isn't represented here and that is the military, which controls a good bit of land in Alaska. I think we have some military representatives here. I wonder if any one of them would care to comment on Trumpeter Swan habitat on military lands.

WEAVER: Excuse me, Dave. They are presenting a short paper tomorrow morning. That's not on the program. We're happy to have them.

. . . . . .

BURGESS: I don't know exactly how the proposal would concern us in itself, and whether this is good or bad for the Trumpeter Swans in that area [Copper River Delta - Chugach], but I do know that we're concerned with the disturbance that would be associated with both the access road to the fields and to whatever means you plan to obtain this land to get the coal out. And so I want to ask, are you people talking about ways and means of reducing the disturbance to all wildlife, perhaps, but particularly Trumpeter Swans, if this exchange comes about?

PROPES: I think our approach was this -- we recognized that within the legislative context, meaning that in order to put something together this year for the Congress, we certainly didn't have enough time to address all of the stipulations that will eventually have to be addressed, if you have a conflict between coal development and Trumpeter habitat. So, to deal with it simply, we set up this cooperative planning mechanism that prohibits us from any development, unless it's acceptable in every aspect to the Federal and State land managers that have a direct interest in this. So, for instance, as we go down the road, say 10 or 20 years, and we are actively getting into coal development at that time, then access and reclamation, water quality, and fences and powerlines, and what have you, will be specifically addressed, and the Federal and State land managers will have to be satisfied that we're doing it in the best possible way, and that there won't be any reduction of Trumpeter habitat or of population.

BURGESS: I think we're particularly concerned with your means of getting coal out. . . . going through an area that's a good Trumpeter Swan nesting area. My other question, I guess, this is to Dan [Timm]. We've got a lot of agencies involved both in the Delta cooperative unit and also in the swan cooperative unit, and I understand that probably your agency [ADFG] is the only one concerned with enforcement of regulations. The other agencies, as I see it, well, Fish and Wildlife Service of course in swans has important authority, but I expect that the main enforcement burden falls on your shoulders. Is this right? On your agency's shoulders? State Troopers or whatever.

TIMM: It's actually the Department of Public Safety, the wardens are divorced from Fish and Game.

BURGESS: So you have actually another agency involved in this.

TIMM: Yes, waterfowl regs . . . I know that Federal game agents get down there fairly often.

BURGESS: Do you feel at this time that the enforcement section is capable of protecting that area, protecting swans in that area? As of now? It's a pretty accessible area, actually.

TIMM: Yes, there's been a family . . . that I can think of right along the highway for years and years. But, they find swans dead, too, once in a while.

BURGESS: I'm not concerned so much with subsistence -- people living off of it -- so much as I am with pot shooting.

TIMM: Yes, I think the enforcement level was adequate to maintain a static population.

BURGESS: Would you like to have more?

BUCARIA: Unfortunately, I was not present during some of the panel presentations. I understand no one had brought up the topic of involvement of local people, and that topic had been covered relative to the effort on the Kenai to a degree. I think there's a lesson to be learned from this type of involvement, and one I think we're all aware of, and that is the grass roots movement will probably accomplish more in the long run -- both for individual goals and for national goals, perhaps. The question comes to mind just in my brief tenure on the Chugach Forest in the Copper River Delta -- one of the things we observed there, and I think these things stand out in this regard through some of the efforts that have been put forth by Federal agencies in terms of desecration of signs, in terms of shooting of eagles, and in terms of the occasional Trumpeters that are found by the wayside with bullet holes, etc. And these may be isolated cases, but tend to magnify and dramatize some of our problems. My concern is for the youth, having been a former teacher at the high school level -- concern for the youth in that they receive appreciation for the resources. At a conference like this we have no questions to grasping the needs for the various species and in the past we have learned from the mistakes, and problems have been resolved, somewhat resolved -- have been at least attacked towards their solution. But the question that I have is, have we other than our own individual agency efforts, have we really sparked a national movement to try and solve this problem which because of its social value in changing times, the lack of opportunities for getting out and tramping and appreciating and viewing some of

these things by a large part of our population, has the Society, have our agencies really addressed this question sufficiently? Maybe we could toss that around.

SPENCER: Anybody care to respond?

HILLIKER: Perhaps a comment or two . . . . I consider the environmental impact process, including the review, an opportune time, perhaps the epitome of an opportunity for public input. Certainly that's the way it turned out to be in the Trans-Alaska Pipeline process, not only here in Anchorage and in Alaska, but all over the United States . . . . So, there is at least reference to my project. Public input certainly was not overlooked. One other point -- I think the environmental impact statement process and the National Environmental Protection Act, epitomizes the fact that there is public concern about a variety of environmental problems.

BUCARIA: I recognize the value of the impact statement. I've written impact statements for the Federal Power Commission, for the Bureau of Land Management, Alaska OCS Office, probably will do some for the Forest Service. I contributed statements to the Bureau of Land Management in the Lower 48 and to agencies here in Alaska on numerous occasions. As a school teacher during 1969-1970, we were at the peak of the popular movement for bringing public awareness. I get the impression now that there's been a saturation, at least at some levels. At the level I'm speaking about, there are isolated young people who perhaps involve themselves and others, and people such as ourselves, but I'm talking about something that will build a little more personal concern. I'm talking about problems relating to teen-agers, perhaps up in Kotzebue, perhaps down in Cordova. I'm talking about something that will catch on and be a fabric, within the ingrained fabric of social structure. I'm a little concerned about what I see on the streets . . . .

OLSON: I would like to say something. I think what you're referring to, Garvin, is a conservation education effort that would supplement all the planning that we've been talking about, all the provision for habitat, etc. In speaking for the Forest Service, we do have an environmental education program. We have tried to extend this into the schools to foster this awareness that I think you're pleading for, searching for. How successful it's been, I can't really say. I don't think the Forest Service has been alone in this. I think all the agencies are striving for this goal. However, it may be that we are neglecting it. This may be something that has to be stepped up, given more consideration than we have in the past so that the thoughtless destruction of individual animals, birds, what have you, the littering of our countryside, etc., we can minimize this with better education. And maybe the Society here needs to think also in those terms as part of its program to further and reach its goals.

SPENCER: Any further questions? If there are none, why, we'll conclude this program and thank the participants very much.

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