Colonel Andrew M. Perkins, Jr.
U.S. Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, Virginia 23510-1096

Attn: Robert Berg
Regulatory Branch

Re: Tommy Hart, Permit Application No. 94-5625-29, Chesapeake, Virginia

Dear Colonel Perkins:

The U.S. Fish and Wildlife Service has reviewed the Department of the Army permit application 94-5625-29, submitted by Tommy Hart, to construct a logging road in Chesapeake, Virginia. Your May 24, 1995 request for formal consultation was received in this office on May 30, 1995. This document represents the Service's biological opinion on the effects of that action on the Dismal Swamp southeastern shrew (Sorex longirostris fisheri) in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The Dismal Swamp southeastern shrew has not been documented within the project site, but the applicant has chosen to assume this species is present in areas with appropriate habitat. This letter also provides the separate comments of the Service and the Department of the Interior pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), which are included following the biological opinion.

I. CONSULTATION HISTORY

10-03-94 The Service received the U.S. Army Corps of Engineer's request to review the proposed project for impacts to Federally listed species.

10-11-94 The Service sent the Corps a letter recommending that surveys be conducted for the Dismal Swamp southeastern shrew and the Virginia least trillium.

10-17-94 The Department of the Interior received a letter from Congressman Norman Sisisky requesting information on the status of this project.

11-15-94 The Service sent a letter to Congressman Sisisky's office providing information on the status of the project.

12-19-94 The Service received a copy of Dr. Robert K. Rose's initial assessment of the project site.

03-14-95 The Service participated in a site visit with the Corps and the applicant.

05-30-95 The Service received the Corps' request to initiate formal consultation and receive a draft of the biological opinion.

06-29-95 The Service received the Corps' and applicant's comments on the draft biological opinion.

II. BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The permit applicant, Tommy Hart, has applied for a Department of the Army permit to construct a logging road in Chesapeake, Virginia (Figure 1). Mr. Hart proposes to construct a logging road across uplands and wetlands on a 153-acre parcel south of Buskey Road, east of Taft Road, and west of Bunch Walnuts Road (Figure 2). The stated project purpose is to construct a logging road to two upland "islands" and the northern edge of his property (just south of and bordering farm land off Buskey Road) to log these areas. The surrounding wetlands that are easily accessible will also be logged. The proposed logging road would run west from Taft Road and would turn north/northwest, crossing uplands and forested wetlands associated with the Northwest River. The total area to be logged is approximately 60 acres (R. Berg, U.S. Army Corps of Engineers, pers. comm. 1995).

The width of the logging road will be 25 feet. Approximately 0.93 acres (40,375 square feet) of forested wetlands and 1.18 acres (51,500 square feet) of forested uplands will be permanently impacted by clearing and filling for the road construction (Figure 2). For the first wetland crossing from the agricultural field next to Taft Road to the first upland island (608 linear feet), adjacent wetlands will be excavated to obtain material to create the road. For the wetland crossing from the first to the second upland area (633 linear feet), fill from an upland site will be used for road construction. The wetland crossing from the second upland island to the northern portion of the property (374 linear feet) will be constructed from upland fill. During the March 14, 1994 site visit, Mr. Hart stated that the logged area would be planted in pines and that the road needed to be permanent so that the area could be logged in the future.

The action area for this biological opinion has been determined by the Service to be the area to be logged.

RANGEWIDE STATUS OF THE SPECIES

The Dismal Swamp southeastern shrew is a small mammal that weighs less than 0.2 ounces and measures approximately four inches in length. Little is known about the life history of the shrew, except that in 1905, a litter of five young were found in a nest in the Dismal Swamp (U.S. Fish and Wildlife

Service 1994). However, the species' life history is likely similar to that of the southeastern shrew (S. l. longirostris). Based on a few studies, it appears that southeastern shrews average approximately four young per litter (U.S. Fish and Wildlife Service 1994). Pregnant southeastern shrews have been found in Indiana from 8 April to 25 September and in Alabama and Georgia from 31 March to 6 October (U.S. Fish and Wildlife Service 1994). Shrews of the genus Sorex usually have at least two litters per year (Churchfield 1990). It is likely that young shrews remain in the nest for their entire period of growth and development and are nearly adult size when they leave the nest (U.S. Fish and Wildlife Service 1994).

Southeastern shrews feed mainly on small-sized invertebrates, but consume some vegetation (U.S. Fish and Wildlife Service 1994). Typically, shrews forage intermittently throughout the day and night in all seasons and seem to have highest levels of activity associated with rainfall and periods of high humidity. Much of their foraging occurs in the leaf litter or in tunnels in the upper layers of the soil (U.S. Fish and Wildlife Service 1994). Predators of southeastern shrews include barred and barn owls, domestic cats, and occasionally snakes, domestic dogs, and opossums (French 1980).

The main reasons for the shrew's decline are habitat loss and modification and possible loss of genetic integrity through interbreeding with the more common upland subspecies (U.S. Fish and Wildlife Service 1994). "It is presumed that the Dismal Swamp southeastern shrew developed its distinctive size and coloration while geographically or ecologically isolated within the Great Dismal Swamp during the Holocene (Handley 1979). The recent human-induced progression toward homogenous mature hardwood forest, more representative of habitat conditions of the surrounding region, leads to the possibility that the more common and presumably more generally adapted . . . subspecies could invade the Dismal Swamp and genetically overwhelm the existing populations of S. l. fisheri, which are more specifically adapted to historic swamp conditions" (U.S. Fish and Wildlife Service 1994).

The Dismal Swamp southeastern shrew's distribution is considered coincidental with the boundaries of the historic Dismal Swamp, an extensive contiguous wetland complex that once occupied most of the low-lying land between Norfolk, Virginia and the Albemarle Sound in North Carolina. Historically, this wetland complex was maintained in a variety of successional stages (such as marshes, canebrakes, pocosins, and forest) by natural fires. The original Dismal Swamp ecosystem has been greatly reduced in size because of urban development and the clearing and draining of land for agriculture and silviculture. Most of the remaining wetlands are forested. Approximately 197,680 acres of these wetlands remain, more than half of which are preserved by the Service as the Great Dismal Swamp National Wildlife Refuge, created in 1974, which is in Virginia and North Carolina. The Service is attempting to restore some of the vegetational and successional diversity to the portion of the Dismal Swamp ecosystem within the Refuge. The Great Dismal Swamp State Park in North Carolina provides an additional 22 square miles of shrew habitat. There are additional areas of protected shrew habitat such as the North Landing River Preserve and the Northwest River Park in Virginia and Elizabeth City State University's Dismal Swamp Wetland in North Carolina.

Outside the protected areas, remnants of the Dismal Swamp are rapidly disappearing in southeastern Virginia due to development associated with the Hampton Roads metropolitan area (U.S. Fish and Wildlife Service 1994). In North Carolina, agricultural and silvicultural conversion are the main causes of habitat loss. "In the vicinity of Elizabeth City, North Carolina, for example, two tracts totaling some 32,000 acres of swamp have been cleared and drained within the past 20 years. Besides these contiguous tracts, many smaller areas within the historic Dismal Swamp of North Carolina have been ditched and cleared in a piecemeal fashion. In Virginia, a comparison of U.S.G.S. 7.5-minute topographic maps to recent aerial photography revealed a collective loss of some 2,600 acres of forested land, scattered over four maps portraying the Dismal Swamp (S. Martin, U.S. Army Corps of Engineers, pers. comm. 1993)" (U.S. Fish and Wildlife Service 1994).

Within the historic Dismal Swamp boundaries, the Dismal Swamp southeastern shrew is found in a range of habitats including recent clearcuts, regenerating forests, young pine plantations, grassy and brushy roadsides, young forests with shrubs and saplings, and mature pine and deciduous forests (U.S. Fish and Wildlife Service 1994). The shrew is likely to exist at highest densities in early successional wetland habitats, such as cane stands; shrub-dominated areas; and young, open forests that retain a fairly dense herbaceous understory. The shrew also occurs at high densities within cleared right-of-ways, such as those used for utility lines, as these areas often contain early successional habitats such as scrub-shrub wetlands. Mature wetland forests also provide habitat diversity important to the integrity and dynamic structure of the shrew population as a whole. Rose (1983) found that the shrew was most abundant in mid-successional, 12 to 15 year-old regenerating forests having a dense understory, moist organic soils, and moderate leaf litter.

Recently, new evidence suggests that the Dismal Swamp southeastern shrew may occur throughout the coastal plain of North Carolina, at least as far south as Wilmington (U.S. Fish and Wildlife Service 1994). However, until this can be substantiated through additional distribution and taxonomy studies, the shrew will remain on the Service's list of endangered and threatened wildlife and plants. As such, the shrew, and its habitat, will continue to receive protection pursuant to the ESA until it is removed from this list.

ENVIRONMENTAL BASELINE

Status of the Species - The majority of the action area consists of forested wetlands (PFO1E and PFO1C) associated with the Northwest River. On October 20, 1994, Dr. Robert K. Rose, leader of the Dismal Swamp Southeastern Shrew Recovery Team, visited the site and determined that appropriate habitat for the shrew occurs at the site and the shrew is likely to occur there.

Effects of the Action - In evaluating the effects of the Federal action under consideration in this consultation, 50 CFR 402.2 and 402.14(g)(3) require the Service to evaluate the direct and indirect effects of the action on the species. Direct impacts to the shrew associated with this project include the potential to crush shrews with vehicles and heavy equipment while clearing vegetation for and

constructing the road and during the logging operation, resulting in death or injury. During road construction, 2.11 acres and any adjacent areas cleared for the road or excavated to obtain fill material for the road will be unusable to shrews. Additionally, the shrew will be directly affected by the permanent fill of 2.11 acres of habitat from the road construction and the temporary loss of approximately 58 acres from the logging. Although the 2.11 acres filled for the road will result in a loss of shrew habitat, because this road will only be used infrequently for logging operations, it is likely that leaf litter will accumulate on the road and some herbaceous vegetation may survive, thereby allowing for some use by shrews. Because the permanent road will be narrow and surrounded by appropriate shrew habitat, no habitat fragmentation is expected. Logged areas will result in early successional vegetation that provides good habitat for shrews.

Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). Indirect effects will result from the planting of pines after logging. During the planting operation, it is likely that shrews will be crushed by vehicles and heavy equipment, resulting in death or injury. In addition, conversion of this area to a pine plantation is likely to result in less suitable habitat for the shrew.

While there is likely to be a loss of individual shrews, because there will only be a minor amount of completely unusable habitat created and no habitat fragmentation, this loss should not affect the genetic viability or range of the species. "Because these shrews have a high reproductive potential and rapid maturation rate, limited collection of individuals is not detrimental to healthy populations, although more widespread mortality associated with loss or permanent alteration of habitat continues to constitute the primary threat to the survival of this subspecies." (U.S. Fish and Wildlife Service 1994). Shrews from areas adjacent to the action area will probably recolonize the portion of this site where temporary impacts (i.e., logging) will occur.

Cumulative Effects - Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

One future activity that will affect the shrew is additional logging of this site. The road is proposed to be maintained, therefore, additional permanent habitat loss should not be necessary during future logging activities. However, it is likely that some shrews will be injured or killed during future logging operations. Because shrews are found in high densities in early successional habitat, future logging practices will result in usable shrew habitat, and therefore, are not likely to detrimentally affect the shrew population in the action area over the long term.

CONCLUSION

After reviewing the current status of the Dismal Swamp southeastern shrew throughout its range and in

the action area, the environmental baseline for the action area, the effects of the proposed logging road and the cumulative effects, it is the Service's biological opinion that the construction of the logging road, as proposed, is not likely to jeopardize the continued existence of the Dismal Swamp southeastern shrew. No critical habitat has been designated for this species, therefore, none will be affected.

III. INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of the ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns, which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

AMOUNT OR EXTENT OF TAKE

The extent of incidental take of the Dismal Swamp southeastern shrew anticipated from this project is difficult to quantify because the population density of the shrew within the action area has not been determined, and any shrews that are killed during road construction and/or logging activities will be difficult to observe or locate due to their coloring, small body size, and tendency to remain beneath the leaf litter or underground. However, the level of take of this species can be anticipated by the areal extent of the potential habitat affected. This incidental take statement anticipates the taking of Dismal Swamp southeastern shrews from at least 60 acres resulting from road construction activities, logging, planting, and loss and degradation of habitat.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The measures described below are nondiscretionary, and must be implemented by the Corps so that they become binding conditions of any permit issued to the applicant in order for the exemption in Section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this

incidental take statement. If the Corps (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

1. Vegetation clearing, placement of fill, and use of heavy equipment for road construction should be minimized. This will reduce soil and leaf litter disturbance, thereby minimizing impacts to shrews and their habitat.

2. Impacts to wetlands should be minimized. This will lessen the impacts to shrew habitat.

3. Avoid use of pesticides. This will minimize impacts to the shrew.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of Section 9 of the ESA, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following measures will be taken during clearing, construction, and maintenance activities associated with the road:

    a. No placement or stockpiling of fill material will occur outside the 25-foot road width.

    b. Vehicles and heavy equipment used for road construction will remain within the 25-foot road width.

    c. All work in wetlands will be done on mats where practicable.

    d. Initial and maintenance clearing of vegetation in wetlands will be done by hand where practicable.

    e. No use of broad scale or aerial pesticide applications.

    f. The fill shall be properly stabilized and maintained during and following construction to prevent erosion.

    g. The Corps will determine and approve the number and size of the culverts to ensure

that the flow and circulation patterns of the wetlands at the site are not impaired.

2. The applicant is required to notify the Service before initiation of construction and upon completion of the project at the address given below. All additional information to be sent to the Service should be sent to the following address:

Virginia Field Office
U.S. Fish and Wildlife Service
P.O. Box 480
White Marsh, VA 23183
(804) 693-6694

3. Care must be taken in handling any dead specimens of the Dismal Swamp southeastern shrew that are found in the project area to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, initial notification must be made to the following Service Law Enforcement office:

Division of Law Enforcement
U.S. Fish and Wildlife Service
P.O. Box 187
Yorktown, VA 23690
(804) 890-0003

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures the Service believes that impacts to shrew habitat have been minimized.

IV. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to further minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans and other recovery activities, or to develop information to benefit the species.

The Service recommends that fill material for the road be taken from an upland source. Although this

area will be logged and planted with pines, minimizing soil disturbance will minimize alterations in hydrology and will lessen impacts to shrew habitat, reducing the length of time that this area is unusable to shrews..

The Service also recommends that the Corps conduct before and after surveys for the Dismal Swamp southeastern shrew within the action area. This will allow our agencies to determine the exact effects of logging roads on the shrew. If one or two surveys were conducted before clearing and construction are initiated and several annual surveys are conducted after project completion, valuable information could be obtained regarding use of the road by shrews and the extent to which shrews are impacted. This information could be used in future consultations to better determine the extent of project impacts and evaluate the effectiveness of the terms and conditions provided in biological opinions. Additionally, the Technical/Agency Draft of the Recovery Plan (U.S. Fish and Wildlife Service 1994) for this species indicates that "more information is needed on the distribution and abundance" of the shrew outside the Refuge. Any information on shrew distribution or abundance obtained from the action area would enhance the recovery of this species. The Service would be pleased to work with the Corps to design such a study.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any of these conservation recommendations by the Corps.

V. REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the Corps' request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Unless information in this biological opinion is protected by national security or contains confidential business information, the Service recommends that you forward a copy to the following agency:

Virginia Department of Game and Inland Fisheries
Nongame and Endangered Species
P.O. Box 11104
Richmond, VA 23230

If this opinion is not provided by the Corps and does not contain national security or confidential business information, the Service will provide a copy to this State agency ten business days after the date of this opinion.

FISH AND WILDLIFE COORDINATION ACT REPORT

The following comments constitute the report of the Service and the Department of the Interior on this project and are submitted under provisions of the FWCA. One of the Service's primary concerns is the protection of wetland habitat. Wetlands are valuable resource areas for a number of reasons. They can improve water quality by filtering out sediments and by absorbing excess nutrients and pollutants. They provide rich habitat for a variety of fish and wildlife species. Forested wetlands in particular play a major role in stream ecosystem quality by helping to control water temperature, contributing food matter, controlling upland runoff into streams, and stabilizing stream banks. Forested wetlands also provide habitat for mammals and birds and are used as breeding areas by amphibians. While temporarily and seasonally flooded palustrine forested wetlands in Virginia and the Chesapeake Bay region provide an array of ecological and societal values, they are declining at a substantial rate. In the late 1970s, Virginia had approximately one million acres of wetlands (Tiner and Finn 1986). Palustrine forested wetlands constituted the majority of Virginia's wetlands. From the mid-1950s to the mid-1970s, Virginia experienced a loss of 57,000 acres of palustrine vegetated wetlands, with forested wetlands making up the majority of this loss (Tiner and Finn 1986).

More recent data indicate that Virginia leads the Chesapeake Bay region in present-day wetland losses. The Service's National Wetland Inventory study of wetland losses in the Chesapeake Bay watershed between 1982 and 1989 found that Virginia had the greatest palustrine vegetated wetland losses of any state, losing approximately 23,000 acres (Tiner 1994). As in the past, the majority of those losses, nearly 11,000 acres, occurred to palustrine forested wetlands. Studies specific to southeastern Virginia document even more alarming losses. Between 1982 and 1989/90, over 5,000 acres of vegetated wetlands in southeastern Virginia were lost, the majority converted to uplands (Tiner and Foulis 1994a). Seasonally saturated forested wetlands was the type most frequently converted to upland. The total acreage of wetland loss in southeastern Virginia is especially alarming when viewed in conjunction with two other studies specific to Virginia. Wetland losses during the same time period in the Chickahominy River area totaled 103 acres (Tiner and Foulis 1994b) and in northern Virginia, 126 acres (Tiner and Foulis 1994c). The majority of the wetlands associated with and adjacent to this project are palustrine forested wetlands that provide important habitat for fish and wildlife, including a Federally listed species.

In addition to implementing the terms and conditions stated in the above biological opinion, to further minimize wetland impacts related to this project the Service recommends the following:

1. The best management practices described in the state's approved program description pursuant to the requirements of 40 CFR Part 233.22(I) should be included as special permit conditions of any Corps' permit issued to the applicant.

2. The road should be culverted to prevent the restriction of expected flood flows pursuant to 33 CFR Part 323.4(a)(6)(iii).

3. The design, construction, and maintenance of the road crossing should not disrupt the movement of the aquatic species inhabiting the water body pursuant to 33 CFR Part 323.4(a)(6)(vii).

4. Fill material for road construction should be taken from an upland source; not excavated from adjacent wetlands.

The Service appreciates this opportunity to work with the Corps in fulfilling our mutual responsibilities under the ESA and the FWCA. Please contact Cindy Schulz of this office at (804) 693-6694 if you require additional information.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

LITERATURE CITED

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Rose, R.K. 1983. A study of two rare mammals endemic to the Virginia/North Carolina Dismal Swamp. Unpublished report prepared for U.S. Fish and Wildlife Service; Newton Corner, MA.

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U.S. Fish and Wildlife Service. 1994. Dismal Swamp southeastern shrew (Sorex longirostris fisheri) recovery plan. Technical/agency draft. Hadley, MA. 51pp.

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bcc: Endangered Species Coordinator, Region 5
CBFO Reading File
Endangered Species Biologist, CBFO
Law Enforcement, Yorktown
(Attn: Dan Hurt)
Law Enforcement, Richmond
(Attn: Senior Resident Agent)

10 business days after the date of this letter, mail copies to:
VDGIF, Richmond
(Attn: Endangered Species and Nongame Coordinator)
DNH, Richmond
(Attn: Tom Smith)