



United States Department of the Interior
Fish and Wildlife Service
Ecological Services
West Virginia Field Office
Charles Town, West Virginia



Disclaimer: We have created a fictitious threatened species, the Potomac Highlands hedgehog and mapped it within Jefferson County as a training aid for our Habitat Conservation Planning Course ECS 3117.

May 20, 2002

Memorandum

To: Chief, Division of Consultation and Conservation Planning
Region 5, Hadley Regional Office

From: Field Supervisor, West Virginia Field Office

Re: Formal Section 7 Consultation for Issuance of a Section 10(a)(1)(B) Permit to West Highland Estates, a West Virginia limited partnership, City of Charles Town, Jefferson County (1-6-02-FW-12)

This document transmits our biological opinion based on our review of the proposed West Highland Estates Development Project (Development Project) in the City of Charles Town, Jefferson County, and its effects on the federally threatened Potomac Highlands hedgehog (*Erinaceus americanus virginianus*).

This opinion was prepared using the following information: 1) The HCP, the Implementing Agreement (IA) incorporated herein by reference, May, 2002; 2) Environmental Assessment of the West Highlands Estates HCP (EA), May 14, 2002; other documents as provided by West Highland Estates and their agents; 5) records of communications with West Highland or their agents; and 6) other information in our files. The administrative record for this consultation is on file at this office.

Consultation History

West Highland Estates submitted an EA and a draft Final HCP for their Development Project to the Service on January 28, 2002. The U.S. Fish and Wildlife Service (Service or USFWS) noticed the HCP and EA in the Federal Register on February 20, 2002. This biological opinion addresses the Service's issuance of the section 10(a) permit for the West Highland Estates Development Project only. Request for formal consultation from Chief, Division of Consultation and Conservation Planning, was received in the West Virginia Field Office on February 22, 2002.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action by the Service is to issue a 10(a)(1)(B) permit for the hedgehog that will be impacted by the loss of 50.2 acres of low quality occupied habitat (EA 2002) due to the clearing and development of residential lots and the construction of 110 single family homes within the 200-acre Project site. The applicant is also covering the ongoing agricultural activities until such time as the economy allows for the build-out of the housing development.

The proposed project site (City of Charles Town tract 90210) is located within the City of Charles Town, Jefferson County. It is located in the mouth of Valley Fill Canyon, below the City of Charles Town. More specifically, the property lies south of Old Mine Road and north of the Shaughnessy River, and east of Route 15 (see Figures 1 and 2 of the HCP). Indirect impacts will continue, due to the proximity of the homes, to affect hedgehogs occupying the adjacent Shaughnessy River area.

The Tract was originally approved by the City of Charles Town in the early 1990's. The economic downturn right after the approval caught the builder, and the Tract has been in agricultural production since that time.

Conservation Measures

The following measures will be implemented as part of the proposed action to avoid or otherwise minimize potential adverse effects of the projects implementation on federally threatened hedgehog:

1. To allow for dispersal to occur during the ongoing agricultural phase, the applicant is proposing to plant and maintain old growth hedgerows.
2. Indirect effects from residences will be minimized by:
 - A. Siting the houses on lots 66 through 108 at least 200 ft from the edge of the Shaughnessy River. The developer will also minimize loss of trees, to the maximum extent practicable within this 200 feet corridor.
 - B. Ownership of pet dogs in lots 66 through 108 shall be prohibited by Deed Restrictions unless such pets are maintained entirely within the home. Free roaming dogs will be not permitted.
 - C. Backyard lighting of lots 66 through 108 will be prohibited by deed restrictions to the extent that such lighting spills beyond the rear property line. This will require shielding of any security lighting. Light shields shall extend a minimum of 20 degrees below the centerline of the bulb, and perhaps further depending upon the height of the mounting fixture.
3. Land owners will be informed of the biological resource values of the Shaughnessy River peripheral to the subdivision. An informational package will be attached to the recorded deed of each of the homes built by the project. This informational package will be part of the

deed and transfer from owner to owner. It will address the sensitive and valuable nature of these open space areas, and encourage and inform the resident of the wise use of these resources. The Service will review this information developed by the applicant prior to its use.

4. The Hedgehog Environmental Trust (HET) with the assistance and support of the West Highland Estates Partnership has conducted an exhaustive search for mitigation properties within Jefferson County proximate to the subject Tract. This effort has resulted in the identification of a 1,000-acre property in the West Hills (HCP Figure 1). This property is occupied primarily by a mature, diverse, open hardwood forest and supports at least 25 pairs of hedgehogs.
5. The “in perpetuity” management of the on-site mitigation areas will be accomplished using a non-wasting endowment in the amount of \$2,500 per acre. The interest generated by the first (\$2,000) component of the endowment is intended for use in annual maintenance, signing, monitoring and minor revegetation as required by year-to-year condition of the mitigation area. Interest generated by the second component of the endowment (\$500) is specifically intended to serve as part of a long term WHS emergency fund. HET is ear-marking a similar component of all endowments in Jefferson County for accumulation in a special fund to be used solely for the recovery of hedgehogs affected by the syndrome.
6. Prior to any clearing or development West Highlands will purchase 151 hedgehog credits (acres) within the West Hills Mitigation Bank that support at least seven hedgehogs and fund an additional endowment at \$377,500. Eighty percent of the endowment (\$302,000) is for mitigation management and monitoring and the remainder (\$75,500) is for other Potomac Highlands hedgehog recovery projects by the Bank in Jefferson County. If the Conservation Bank Agreement is not finalized prior to the approval of the West Highlands HCP for reasons beyond the control of West Highlands, West Highlands may purchase 151 acres of suitable mitigation credits in another Conservation Bank, as approved by the Service.
7. The West Hills Mitigation Bank is to be managed with the following specific goals:
 - a. The site is to be maintained primarily as a open hardwood forest community.
 - b. The site is to be managed primarily for the benefit of the hedgehog.
 - c. The site is located within the western portion of the County, ultimately providing protection for the long-term survival of the species.
 - d. HET will pursue the active participation of surrounding land owners, expanding the mitigation bank to form the largest possible habitat fragment.
8. A draft management plan for the West Hills property has been prepared by HET and is included in the HCP Appendix A. The final plan shall contain:
 - a. Specific vegetation species and cover goals, including a weed and invasive species management plan.

- b. A WHS emergency plan.
- c. An invasive predator management plan.
- d. Annual and five-year monitoring and reporting requirements.

Changed Circumstances

As discussed in the Implementing Agreement (IA) for this Plan, two types of events will trigger an evaluation of whether “changed circumstances” as defined in federal and state regulations have occurred. The two types of events are:

1. A pack of feral dogs taking up residence within the conservation bank area; and
2. The Wobbly Hedgehog Syndrome affecting more than 25% of the resident population on the conservation bank property.

If events “1” or “2” occur HET will consult with the Service and shall implement remedial measures determined in cooperation with the agencies (see the IA for the range of measures that will be considered in response to each type of event). The contingency fund (\$500/credit) will be used to implement the remedial measures.

Unforeseen Circumstances

As discussed in the IA, if the Service makes a finding that “unforeseen circumstances” have occurred and warrant implementation of additional measures by either HET or the developer of the remaining lots within the HCP boundary, the additional measures will be restricted to modification of the management of the on- or off-site mitigation lands. Provided that the Plan is in effect and is being properly implemented in accordance with the IA, the Service will not require either HET or the Developer to commit additional land, water, or financial compensation and will not impose additional restrictions on the use of land, water, or other natural resources beyond the level and/or amounts specified in the HCP and the IA.

STATUS OF LISTED SPECIES

Potomac Highlands Hedgehog

The hedgehog is a squat, rounded creature with five-toed, well-padded feet. In the adult, the dorsal and lateral surfaces, excluding the facial area and legs, are densely covered with very coarse hair which has not completely modified itself into spines. Hedgehogs will curl into a ball as a defensive posture. The normal hair on the hedgehog's face, legs, and ventral body surface is coarse and yellow-white to dark brown.

Hedgehogs can live for up to 10 years, but this is exceptional; over half die before their first birthday and average life expectancy is about 2-3 years. Although recent information suggests that a pair will remain monogamous for life, the male hedgehog is solitary and the female mostly so, except during breeding season. Hedgehogs swim well but prefer to avoid open water whenever possible. Although hedgehogs can swim, they have been known to easily drown due to the inability to escape from smooth-sided stream banks or farm ponds.

Hedgehogs travel about 1-2 km each night, males more than females, but stay within about a 30-acre home range territory. The males return to the same daytime burrow for a few days then use another, perhaps returning to an old burrow at a later date. The male's winter burrow is made of leaves, tucked under a bush or log pile or anywhere that offers support and protection. Female hedgehogs build burrows in hedgerows or in the forest edge, while the males burrow in brush piles, under rocks or in other crevices. Females tend to use the same burrow for spring and summer, creating a new burrow for hibernation. Hibernation in their winter burrows lasts from November to April, and juveniles of both sexes hibernate with their mothers. In the spring they commonly spend a few days active then enter hibernation again during a cold snap.

Hedgehogs are able to squeeze under and through tight spaces. This is partly due to the loose nature of the hedgehog's skin--a feature which also allows it to curl up into a tight little ball when threatened by predators. Such predators include man and dogs, foxes, polecats, badgers and tawny owls. Because the hedgehog does not dash away from larger animals like some of its smaller relatives, *E. europaeus* is thought to be slow and ponderous; however when it wishes, the hedgehog can run quite quickly.

The Potomac Highlands Hedgehog requires multiple habitat types where plenty of food is available. The preferred habitat is large, open hardwood forests. Intensively farmed arable land is a poor habitat, as is conifer forests, but un-mowed pastures and old-fields are utilized. Forest edges and shrubby hedgerows are used for movement while searching for food during the night. Young dispersing males often take up residence in shrubby hedgerows or along riparian corridors while looking for new territory. In winter, males use oak hardwood forest, utilizing mast and rooting for grubs and insects in the bark of old, soft logs.

The hedgehog has been known to eat a wide range of invertebrates but prefers earthworms, slugs and snails. Its favorite arthropods seem to be millipedes and ground beetles. The hedgehog will also eat frogs, small reptiles, young birds and mice, carrion, small bird eggs, acorns, and berries. Young hedgehogs are weaned on insects in the spring, which make up over 90 percent of their diet. The high protein content allows them to grow quickly, and they soon learn to forage for themselves, although they continue to forage with their mother. In the winter, while the female is hibernating, the

male hedgehog's diet focuses on beetle larvae found underneath the bark of dead hardwood trees. Mast (primarily acorns) is also frequently eaten.

Mating occurs within large forested areas during early spring. Several male hedgehogs will gather in an open area of the forest and some sort of pecking order within the group will fall into place. They make a variety of snuffling and snorting vocalizations and also clack their teeth. Although some sort of behavior, akin to fighting, does occur, rarely is there any injury to the hedgehogs involved. This group behavior by the males appears to be intended to attract the females for mating. It is unknown if some sort of scent is released, but the effect does seem to draw females to the area for investigation and mating. Once the female of the pair is located, the male will point his nose to the ground and tail into the air, make a high pitch squeal and rapidly turn half-circles back and forth. This is a highly sensitive time during the season for hedgehogs that are generally solitary, and mating adults are easily disturbed by bright lights and loud noises.

The main conservation strategy for the species is to conserve large blocks of open hardwood forest on both the east and west side of Jefferson County, connected by dispersal corridors. It is currently unknown how far young males will disperse, however if this hedgehog is consistent in this behavior to other small nocturnal mammals, it could be 1 to 2 miles. Therefore, the corridors will have to be connected at short distances with breeding habitat areas. Based on the amount of habitat left in the County and the current distribution of large open blocks, at least 75% of the hardwood habitat will have to remain in the County for the hedgehog to persist. The Service also anticipates that restoration will be needed in key locations throughout the County. The current strategy is to build off of public lands already in conservation. Riparian corridors and changes to current farming practices will likely be key in making the dispersal connections a success. The Service will strive to minimize impacts to dispersal corridors and will focus on working with the County and other entities to conserve and manage the large blocks of occupied open forest which currently have the highest threats associated with them.

The Service listed the hedgehog as threatened on March 4, 2001 (50 CFR 12229). The Service determined at the time of listing that the designation of critical habitat was not prudent.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of State and private actions which are contemporaneous with the consultation in progress.

We estimated in 2002, that 968 pairs of hedgehogs occurred in Jefferson County (U.S. Fish and Wildlife Service 2002). Hedgehogs are highly associated with one vegetation type, open hardwood forest. Approximately 166,000 acres of open hardwood forest habitat remain in Jefferson County, of which 73,255 acres are potentially very high to high quality hedgehog habitat (Appalachian Biological Services 1995). The primary area with potential and known occupied habitat for the hedgehog is in the western portion of the County. The Green Hills Conservation Bank is in the final stages of being approved which will conserve 773-acres, the only core population of hedgehogs that will be protected.

The main threat to hedgehogs is habitat loss due to changing farming practices, suburban development, and clear-cut logging. Modern farming practices have eliminated much of the hedgerows that are used as cover habitat while dispersing or searching for food. The increased use of chemicals, particularly pesticides for intensive farming, has decreased the amount of invertebrates available for young and may be harming the hedgehogs directly. Burrows in hedgerows are poisoned because they are mistaken for groundhog burrows or fox dens. In addition, large blocks of forests are logged via clear-cut; the old dead fallen logs and the mast disappear. Selective logging may not be quite so injurious, but it may impede the hedgehog's winter food hunting habits.

The open hardwood forest habitat in the county was once widespread, however agricultural practices, changing from pastoral farming to arable crops, have fragmented the habitat. Fragmentation of habitat in this region effectively isolates many populations due to the lack of suitable habitat for hedgehogs to travel through. Large blocks of forests between the agricultural areas have been the stronghold for this species. However, within the past 15 years, the urban sprawl has been converting the forested areas to development. Up to 80 percent of the open hardwood forest habitat has been lost as a result of development and land conversion (Westman 1981a, 1981b; Barbour and Major 1977), and open hardwood forest habitat is considered to be one of the most depleted habitat types in the eastern United States (Kirkpatrick and Hutchinson 1977, Axelrod 1978, Westman 1987, O'Leary 1990). Evidence suggests that fragmentation of habitat results in poor long-term survival for native species (Soule *et al.* 1988). How much habitat the hedgehog needs for long-term survival, and the degree of habitat fragmentation that it can withstand, are currently under investigation.

Some hedgehogs are killed on the roads, but most are likely killed by predators. Predators include man and dogs, foxes, raccoons, polecats, badgers and tawny owls. In the past few years, West Virginia has seen a general increase in feral hunting dogs. As the urbanization has increased, hunting has decreased, which has increased the number of feral dogs.

The most recent threat to the hedgehog is the Wobbly Hedgehog Syndrome (WHS). WHS is a progressive, degenerative, neurological disease, the cause of which is still uncertain, but which acts much like Multiple Sclerosis does in humans. It is thought that the disease is in some way related to exposure to pesticides.

Ongoing loss of open hardwood forest habitat from unauthorized clearing of hardwood forest habitat from development projects for which it was determined that hedgehogs were not present onsite have occurred throughout the county, further reducing the amount, quality, and connectivity of hedgehog habitat.

We anticipate that current efforts by the County of Jefferson to develop a multi-species HCP in Jefferson County will help establish critical connectivity between existing hedgehog-occupied Reserve lands, and will play an important role in conservation of the remaining hedgehogs and open hardwood forest habitat in the county.

To date, incidental take for hedgehogs obtained in Jefferson County includes Cooperative Agreement Addressing the County Weed Abatement Program (400 acres, 7 hedgehogs) (U.S. Fish and Wildlife Service 2002); and 3M Industrial Quarry Mineral Products Expansion and Access Road (77.5 acres, 2 hedgehogs) (U.S. Fish and Wildlife Service 2002).

EFFECT OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

The proposed action will remove 50.2 acres of occupied hedgehog habitat. Less than 5 acres of hardwood forest habitat will remain on-site, however the exact amount is undetermined. The surveys conducted onsite have identified at least seven hedgehogs using the property. The information suggests that the main use of the habitat on site is for dispersal and potentially female wintering habitat.

Construction activities involving the use of heavy equipment may result in the direct loss and mortality of hedgehogs. Individual hedgehogs occupying daytime burrows during the construction phase are likely to be crushed if heavy equipment moves over the areas containing burrows. The risk of individual hedgehogs being crushed is heightened during winter months when hedgehogs are in hibernation (November through April), and spring when hedgehogs may alter between active periods and hibernation in response to weather conditions. The construction phase of the West Highlands Development is proposed to occur year-round, so the direct loss of hedgehogs due to crushing is likely. Based on the number of hedgehogs estimated to be present within the development area, up to seven hedgehogs could be injured or killed during the construction phase. While the loss of seven hedgehogs would represent a reduction in the distribution of this species in Jefferson County, it is unlikely that the mortality of seven individuals would be measurable at the population level. Hedgehogs are likely to continue to utilize adjacent areas for dispersal, and over time, repopulate areas within the Development site if suitable habitat exists.

The effect of noise and disturbance on hibernating hedgehogs is not known, but it is reasonable to expect that individual hedgehogs will detect construction activities. Hedgehogs in burrows which are not directly impacted by the construction may be disturbed to the point that they abandon their burrows. While forcing individual hedgehogs to relocate burrows is likely to increase stress on individuals (especially during the winter hibernation), it is unlikely that these individuals will experience any long term harmful effects. If hedgehogs successfully relocate their burrows to areas outside of the proposed construction area, the number of individuals exposed to direct mortality from the construction may be decreased, and an overall reduction in the risk of mortality associated with this Development could result. The Service is currently not aware of any measures that might influence the self-induced movement of burrows of hibernating hedgehogs.

During the construction phase, hedgehogs emerging at night to forage within the Development site (spring, summer, and fall months) may become trapped or stranded in depressions and/or within other construction-related structures. These individuals are not likely to be killed, but are likely to experience increased stress until they can return to their burrows. The investigation of ditches and other open holes which may entrap hedgehogs prior to starting construction each morning could

reduce the likelihood of hedgehogs being harmed if trapped. The applicant has not included any provisions for inspecting the construction site prior to resuming activities each morning.

It is unlikely that the site is being used for breeding; however one pair of hedgehogs was seen on the site during the beginning of breeding season. Given that a territory size is 30 acres, the loss of the 50.2 acres of habitat could be the loss of 1 full and a partial territory. However, this site is not large enough to support breeding territories given that the average forest patch size for males to gather in groups is 1,000 acres (Hall 2002a).

Loss of any habitat for the hedgehog is an impact given that eighty percent of the habitat has been lost. However, the purchase 151 credits in the West Hills Mitigation Bank will help conserve a large block of viable habitat for the hedgehog. In addition, the 3:1 ratio is consistent with the strategy to conserve at least 75% of the hedgehog habitat in the County. The Service will strive to ensure that the remaining habitat is distributed in the County in a logical fashion to allow hedgehogs to disperse to other breeding areas, allowing genetic exchange.

The West Hills Mitigation Bank is located in the western portion of the county, which seems to be the core population center for the species. Recovery efforts will most likely center around conserving the core population centers on the west and east side of the county and maintaining dispersal corridors between the populations. The West Hills bank is the start of realizing this conservation strategy. Conservation banks should help conserve large blocks instead of creating small mitigation sites that are subject to further fragmentation.

Based on the survey information, reproductive biology of the hedgehog and known distribution of the hedgehog in the County, the current use of the site seems to be mainly for dispersal. The main use area is most likely the edge area and the Shaughnessy River for dispersal. Given the timing of the surveys, it is possible that female hedgehogs are using burrows on the property for over wintering, most likely at the edge of the forest and the agriculture area.

The setting of the homes in the front of the parcels and leaving at least 200 feet of natural habitat adjacent to the Shaughnessy River will increase the likelihood of this area being used for dispersal. This buffer plus the limitations placed on human activities are intended to reduce the indirect effects that are reasonably certain to occur to hedgehogs in the development and in the adjacent Shaughnessy River associated with this project. These limitations will include education programs for homeowners that will make homeowners aware of issues regarding predation due to increased presence of pets, and measures to reduce predation. In particular, stray dogs. Recent studies suggest that females will still use forest edges adjacent to development to build over-wintering burrows in which 98% will likely emerge the following year (Hall, 2002b).

In addition, indirect effects from the proposed development will occur to the adjacent hedgehog-occupied Shaughnessy River area. The increased presence of humans and human activities are likely to result in indirect effects due to human activities, noise, lighting, invasive exotic species, and predator species, including feral dogs.

Noise and vibration associated with project construction are thought to be potentially harmful to a variety of mammal species (Gunn and Livingston 1974, RECON 1989, Pike and Hays 1992). Additional noise caused by the project would likely reduce habitat functionality and reproduction success. Night lighting associated with construction activities, streets, and homes is potentially

harmful to hedgehogs by increasing visibility for predators and in general may negatively impact the behavior of this species. Minimization of these effects includes the use of directed or shielded lights.

Anecdotal evidence suggests that human presence can attract predators to habitat areas. Predators and cowbirds may both be capable of “homing in” on agitated animals. Trash and debris, particularly food, likely attract predators such as fox, raccoons, rats and feral dogs. Limitations placed on human activities adjacent to the Shaughnessy River should off-set these impacts.

Problems associated with habitat fragmentation include increased edge habitat and edge effects, isolation, the attraction of native and feral predators, and the invasion of alien grasses that exploit disturbed conditions. As a result, mortality rates for hedgehogs remaining in fragmented areas will likely increase owing to the removal of refugia and increased competition. Also, animals displaced by habitat loss may, at least in the short-term, pack more densely into remaining suitable habitat within or adjacent to the construction limits. This temporary crowding phenomenon in response to habitat fragmentation has also been observed in tropical and temperate forest reserves, where initial rises in population densities in isolated fragments were followed by increased competition and population decreases to levels lower than those before the displacement (Meffe and Carroll 1994). Fragmentation will also initially contribute to higher mortality for dispersing hedgehogs owing to the creation of a “mortality sink” (i.e., area of denuded vegetation) where survival is unlikely. Hence, effective dispersal rates and distances will likely decrease in and adjacent to the site.

The temporary crowding phenomenon should be offset by the creation of hedgerows in the ongoing agriculture area. While these hedgerows would only allow limited dispersal to the north for a short amount of time, due to the extreme decline of the species limited dispersal is necessary. Until such time as the regional plan can restore and provide more dispersal opportunities, some dispersal will improve the chances of the species surviving. The Service expects that the hedgerows provided on this property will be replaced with other dispersal opportunities in the future.

The other main threat to the hedgehog in West Virginia is the Wobbly Hedgehog Syndrome. This proposal will establish and account that will aide in identifying the causes and remedies for this syndrome. Through the use of the emergency fund established by HET, the hedgehogs on the conservation bank property may possibly provide research opportunities for the contribution to a long term solution to this threat range-wide.

Based on the proposed conservation efforts described above and in the HCP and IA, the foreseeable take of hedgehogs and impacts to the species' habitat in the Development area are offset by the proposed conservation strategy. Further, implementation of the HCP is expected to benefit the conservation of hedgehogs in the Core Reserves, and thereby, contribute to an ongoing regional conservation effort, and to the survival and potential recovery of this threatened species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, 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 Act. Related Federal actions must be

considered as part of the action (per 50 CFR § 402.02), and would be evaluated in the “Effects of The Proposed Action” section.

Most remaining populations of the listed and sensitive species considered herein occur on privately-owned land. Given the long history of unauthorized land use (*e.g.*, mining, agriculture, grading, burning) in the action area, it is reasonably certain that future, unauthorized activities will continue to contribute to the destruction and degradation of habitats occupied by this listed and sensitive species (Service 1987, 1998b, c). More importantly, residential, commercial, industrial, and institutional developments are projected to increase substantially in the action area during the coming decade. Forecasts by the West Virginia Association of Governments, the Jefferson County Association of Governments, and the West Virginia Department of Finance project that the population in the counties surrounding the Washington DC Metro area will increase from approximately 14.8 million in 1990 to more than 18.5 million by the year 2010; an average of 175,000 to 200,000 people per year (Metropolitan 1993). Much of this forecasted growth is expected to occur in the western areas (*e.g.*, Jefferson and Berkeley counties) due to the conversion of agricultural and open space lands (Metropolitan 1993). This growth will be facilitated by increased infrastructure development (*e.g.*, transportation systems, flood control structures) and contribute to increased generation of pollution, traffic, and noise. Hydrologic conditions and water quality may be altered owing to increases in impervious surfaces associated with development, resulting in increased runoff and siltation, as well as modifications to existing flood control structures and operations. Topographic features may be changed to better accommodate proposed development projects. In combination, the foreseeable development of this region will result in further destruction and fragmentation of habitat for these listed species, thereby, increasing their susceptibility to extinction from chance events such as inbreeding, the loss of genetic variation, high variability in age and sex ratios, and catastrophes such as floods, droughts, or disease epidemics.

We anticipate that the completed plan will address cumulative impacts on listed and sensitive species. The Jefferson County Multiple Species Habitat Conservation Program is moving along in the planning and negotiating process, however, implementation of the plan is still probably about two years away. This plan will include the hedgehog, and will likely include conservation areas supporting this species in the vicinity of the West Hills Conservation Bank.

CONCLUSION

After reviewing the current status of these listed species, the environmental baseline for the action area, the effects of the proposed West Highland Estates Development project, and the cumulative effects, it is the Service’s biological opinion that the issuance of a section 10(a)(1)(B) permit for the West Highland Estates Development project, as proposed, is not likely to jeopardize the continued existence of the federally threatened Potomac Highlands hedgehog (*Erinaceus americanus virginianus*).

These conclusions were reached in recognition of: 1) effects of the action, including conservation measures proposed as part of the project description; 2) the importance of the currently proposed conservation within the West Highland Estates Plan area to the survival and recovery of the Potomac Highlands hedgehog; and 3) the on-site minimization measures proposed to protect the Shaughnessy River area. The conservation and management measures proposed by the applicant, suggest that the significant project-related effects of the proposed action are offset so that the open space portion of the Development and offsite mitigation is expected to function in a manner that is conducive to maintaining and creating habitats for this listed species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent 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 defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 10(a), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the applicant so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 10(a) to apply. The applicant has a continuing duty to regulate the activity covered by this incidental take statement. If the applicant fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 10(a) may lapse. The applicant cannot delegate responsibility for compliance to another individual or agent. Any modification of the reasonable and prudent measures and terms and conditions below requires written concurrence from us.

Section 10(a) of the Act generally does not apply to listed plant species on private lands. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law.

EXTENT OF THE TAKE

We anticipate incidental take of the proposed construction of the West Highland Estates Development project, will include take, in the form of harm or harassment, as defined in 50 CFR § 17.3 not to exceed the following: seven Potomac Highlands hedgehogs.

The Service anticipates that any take associated with the ongoing agricultural operations activities will be in the form of harm and harassment.

EFFECT OF THE TAKE

In the accompanying biological/conference opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the hedgehog when the West Highland Estates development is implemented.

REASONABLE AND PRUDENT MEASURES

The following reasonable and prudent measures are necessary and appropriate to minimize take of listed and sensitive species as described above.

1. The Service shall coordinate management activities for the hedgehog.
1. The Service will ensure that the specified planting and maintenance of old growth hedgerows are implemented.
2. The Service will ensure that the effects of the ongoing agricultural operations are minimized.
1. The Service shall avoid and minimize the effects of construction and operation activities on the Potomac Highlands hedgehog, and their habitat, that result from the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Service must comply with the following terms and conditions, which implement the reasonable and prudent measures, described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure (1), the Service shall comply with the following Terms and Conditions:
 - A. Ensure that management of the 1,000 acre parcel is consistent with the goals of the recovery plan.
 - B. Provide technical advice on monitoring, restoration/revegetation, and other biological issues.
2. To implement reasonable and prudent measure (2), the Service shall comply with the following terms and conditions:
 - A. Condition the section 10(a) permit to require that project proponents provide a recent survey, documenting that no more than seven individuals are using the habitat, to the Field Supervisor of the West Virginia Field Office, at least, 14 days prior to commencing development activities.
 - A. Condition the section 10(a) permit to require that within 60 days the hedgerows (old growth) are placed along at least one side of the property. The hedgerow must be established using container plants of at least 3 feet it height.
 - C Condition the section 10(a) permit to require annual reporting to the Field Supervisor of the West Virginia Field Office on the status of the planting and maintenance of the hedgerows.
3. To implement reasonable and prudent measures (3), the Service shall comply with the following terms and conditions:
 - A. Condition the section 10(a) permit to cover only the current footprint of the agricultural operations.
 - B. Not covering pesticide use in the permit.
4. To implement reasonable and prudent measures (4), the Service shall comply with the following terms and conditions:
 - A. During construction activities, open holes should be covered at dusk and inspected before resuming activity in the morning. If hedgehogs are present in the holes they should be removed by a permitted biologist and placed in the Shaughnessy Riparian area.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Service should also immediately request reinitiation of Intra-Service consultation, coordinate with the permittee to review the causes of the taking, and review the need for possible modification of the reasonable and prudent measures.

Disposition of sick, injured, or dead Potomac Highland's hedgehogs

Upon locating dead, injured, or sick hedgehogs, initial notification must be made to our Law Enforcement Division at: (222) 888-9991 within one working day of discovery. This office should be notified concurrently at: (222) 888-9999. Written notification to both offices must be made within 5 calendar days and include the date, time, and location of the dead animal and any other pertinent information. The location where the dead animal was found should be marked in an appropriate manner and photographed. Care must be taken in handling sick or injured animals to ensure effective treatment and care. Dead specimens should be sealed in an appropriate sized container and refrigerated to preserve biological material in the best possible state. The remains of intact hedgehogs will be placed with educational or research institutions holding the appropriate State and Federal permits.

CONSERVATION RECOMMENDATIONS

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

1. The Service should endeavor through the Clean Water Act permit process to protect the riparian and other aquatic resources utilized or depended upon by large numbers of wildlife species addressed in this action.
2. The Service should encourage applicants to consult with us early (informal consultation) in the project planning process to avoid and minimize project impacts early in the design process, reduce mitigation needs, and to maximize the efficiency of the consultation process.
3. The Service should work with the City of Charles Town to establish conservation of a hedgehog habitat linkage adjacent to the Shaughnessy River.
4. The Service should continue working with Jefferson County to develop a regional plan for the County that would cover the hedgehog and other sensitive species.

REINITIATION NOTICE

This concludes formal consultation and conference on the proposed issuance of an incidental take permit to the West Highland Estates- Charles Town Partners, LTD. 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 (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; or (4) a new species not addressed by this document 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 the Service should immediately request reinitiation of intra-Service consultation. Consistent with the Act, this paragraph shall be applied in accordance with the provisions and assurances of the Implementing Agreement. If the Service reinitiates formal consultation pursuant to this notice, the extent of any additional requirements of the permit applicants shall be governed by the Implementing Agreement.

Any comments or questions should be directed to the West Virginia Field Office at:
(222) 888-999.

cc: Glenn Smith, ES, Region 5, Hadley
Julie Scotch, WV Consultants

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