

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.

**FINDINGS AND RECOMMENDATIONS REGARDING THE ISSUANCE OF AN
ENDANGERED SPECIES ACT SECTION 10(a)(1)(B) PERMIT (TE0999199-0) TO
WEST HIGHLAND ESTATES, LIMITED PARTNERSHIP
TO ALLOW INCIDENTAL TAKE OF THE POTOMAC HIGHLANDS HEDGEHOG,
JEFFERSON COUNTY, WEST VIRGINIA**

I. DESCRIPTION OF PROPOSAL

West Highland Estates Limited Partnership, (West Highland), has applied to the Fish and Wildlife Service (Service) for a permit to incidentally take the threatened Potomac Highlands hedgehog (*Erinaceus americanus virginianus*)(hedgehog) and its proposed critical habitat under the authority of section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act). The project is the residential development of Tract 90210 in the City of Charles Town, Jefferson County, West Virginia. Take of the hedgehog will occur as a result of this development.

As part of their permit application, West Highland has submitted the *Habitat Conservation Plan for the Potomac Highlands hedgehog, City of Charles Town Tract 90210, Jefferson County, West Virginia*, (HCP). The HCP addresses the effects of the proposed development project on the hedgehog and its proposed critical habitat, and describes implementation of take avoidance, minimization, and mitigation measures. The permit would allow incidental take in the form of harm or harassment of seven hedgehogs and 50.2 acres of habitat. The permit would be in effect for a period of 20 years.

In addition, and consistent with the U.S. Department of the Interior’s “No Surprises” regulations [50 CFR 17.22 (b)(5) and 17.32 (b)(5)], West Highland is seeking assurances of no further mitigation requirements for the hedgehog for this project while the permit is in effect.

Documents used in the preparation of these findings and recommendations include: (1) the HCP (West Highland 2002); (2) the Service’s Biological and Conference Opinion (Service 2002a); (3) the Service’s Environmental Assessment (EA) (Service 2002b); and (4) the Service’s Finding of No Significant Impact (FONSI) (Service 2002c). These documents are hereby incorporated by reference as described in 40 CFR 1508.13.

Project Description

The project is residential development of Tract 90210 within the City of Charles Town. 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. The project will result in loss of seven hedgehogs and 50.2 acres of occupied hardwood forest habitat. Additional detail regarding the effects of the residential development is

provided in sections 3 and 4 of the West Highland HCP; in section 4 of the EA; and in our biological opinion for the proposed action.

The HCP describes measures to avoid, minimize, and mitigate any adverse effects of expected take of the hedgehog. West Highland proposes to implement the measures identified in section 4 and Appendices A, B, and C, of the HCP. In general, West Highland proposes to:

- Preserve habitat for the hedgehog;
- Avoid and reduce impacts to the hedgehog;
- Provide for the adaptive management and monitoring of the mitigation lands;
- Respond to changed and unforeseen circumstances; and
- Ensure implementation of, and adequate funding for, the HCP.

Under the HCP, West Highland will acquire 151 credits in the West Hills Mitigation Bank. Proof of the acquisition will be provided to the Service prior to initiating clearing activities. The West Hills Mitigation Bank is to be managed in perpetuity for the conservation of the hedgehog. Prior to the start of clearing activities the 1,000-acre West Hills Mitigation Bank parcel will be encumbered by a deed restriction limiting activity on the Mitigation Bank property to long-term management and preservation of existing natural habitats.

II. PUBLIC COMMENT

On February 20, 2002, the Service published a notice of the availability of, and solicited comments on, the permit application and EA (64 FR 2222). The 60-day public comment period closed on April 20, 2000. Copies of the HCP, Implementing Agreement (IA), and EA were sent to 24 individuals, organizations, and agencies, including members of Federal and State congressional delegations, Federal and State agencies, County and City governments, and environmental organizations. Copies of these documents were sent to approximately 9 other interested parties as a result of requests the Service received after publication of the public notice in the *Federal Register*. This findings document and the Finding of No Significant Impact will be made available to all known interested parties. Following final action on the permit application, the Service will publish in the *Federal Register* a notice of permit issuance or denial.

We received comments from the Shaughnessy River Resource Conservation District, The City of Charles Town, and Mr. David Fleitner. The substantial comments and responses are addressed below:

Comment 1. The HCP “does not provide an accurate accounting of anticipated take resulting from both the ongoing agriculture and the development.”

The Service believes that the HCP does provide for an accurate accounting of the anticipated take which is described in the following narrative.

The area in question has on-going agricultural operations which will continue until such time as the subdivision is started. Incidental take may occur during that timeframe, but it

will most likely be indirect as pesticide use is not being covered and the applicant has agreed to maintain hedgerows to allow for dispersal.

A federal protocol survey, of the hardwood forest habitat, was conducted in May 2001. During that survey effort six hedgehogs were seen within the area.

The primary concern with the project is the Shaughnessy River immediately adjacent and to the south. As can be seen from an examination of Figure 1, the greatest concentration of hedgehog sightings is along the central drainage of the river. At present the River property is neither fenced nor posted and is open to access by any individual. As such, these hedgehogs are already subject to some of the indirect effects of urban development (including dogs, light, movement, and the recreational activities of neighboring residents). Despite these existing effects the property is still occupied by a pair and four additional hedgehogs. In that there has been no effort to minimize the effects of the existing residential tracts and that there is still a population of hedgehogs resident, it follows that the potential impact of Tract 90210 has not been understated.

Given the disturbed nature of the Shaughnessy River property, and given the observational data obtained during the vegetation survey of the property, it is surmised that the main use of the property is for dispersal. This observation is consistent with the density of hedgehogs observed by Braden in western Jefferson County (Braden, McKernan and Powell, 1997, p.607), who reports an *average* territory size of 30 acres.

The respondent provides no basis for the conclusions he draws. The HCP, however, is based on the best scientific evidence and literature available.

Comment 2. There is a failure of the HCP to cite Kelly and Rottenberry's observations as to the effect of canines and more humans in the area.

The respondent refers to a single quote from Kelly and Rottenberry (1993, p. 90): "Observations in the field in Jefferson County of domestic dogs more than a mile from human dwellings (P. Kelly, personal observation) hint of the potential for canine impact deep within reserve boundaries." The HCP is, however, focused specifically on the issue of dogs as a potential influence on the adjacent Shaughnessy River property. As is pointed out by the respondent, there is a lengthy discussion of all types of edge effects (including dogs) in the HCP.

An additional factor discussed in Kelly and Rottenberry (1993, p. 90; see also Soulé, et al., 1988) and not specifically in the HCP is the presence of foxes on the Shaughnessy River property, a factor that will ameliorate the effect of domestic dogs on the hedgehog. Foxes are an effective predator on a variety of meso-predators (such as the domestic dogs) and will significantly reduce the effect that pets have on the Shaughnessy River property.

Comment 3. Famolaro and Newman (1998) is inappropriately utilized to estimate the effect of residential development on hedgehog behavior.

The section in question from the HCP is as follows:

“For the purposes of this HCP it is assumed that the degree of significant effect will extend from the backs of the adjacent lots up to a distance of approximately 200-feet into the adjacent Shaughnessy River. This conclusion is based on the adaptiveness of the species, hedgehogs have been found in a variety of situations within 200-feet of a source of significant indirect disturbance.”

As can be seen from the cited text, Famolaro and Newman (1998) is used only as one *example* — an example of the type of effect significant human influences (in this case excessive noise) can have on nesting hedgehogs. The primary author of the HCP (Riggan, personal communication, 23 March 2000) notes that the hedgehog is not necessarily precluded by the presence of single-family detached residential units. He cites three field examples:

- The Braun property in Santee: a hedgehog, apparently dispersing between parts of its territory, used a backyard shed (the roof of the shed) and an adjacent Peruvian Pepper as a brief stopping point before skirting a backyard pool, a home, and a local collector street.
- The Woodbridge Property in Temecula has at least two pairs that are routinely found within 200 feet (or considerably less) of the adjacent homes.
- At the West Hills Preserve, the southern property line, which is bordered by a row of homes, has pairs of hedgehogs within 200 feet of the existing homes.

As Bailey and Mock (1998) point out, the hedgehog is certainly capable of dispersing over (or through) developed terrain.

The 200 foot depth of residential effect, as used in the HCP, is a composite of the anticipated distance over which the majority of the various factors identified by Kelly and Rottenberry (1993) — and as expanded in the HCP discussion — is operative. The “200” foot distance is a logical working construct; some effects may penetrate further into the Shaughnessy River parcel, and a number of others will be damped out at considerably less than 200 feet.

Comment 4. The 2:1 mitigation ratio is inadequate due to the location of the project in the middle of the County concentration of hedgehogs. One commentor suggested that the 3:1 mitigation ratio discussed in the EA would be more appropriate.

The original 2:1 ratio was derived from the acquisition of the 69 credits at West Hills Mitigation Bank and the 15.79 acres restored and deed restricted on-site. The total acreage proposed for mitigation would result in a 2.1 ratio. However, the restoration proposal was re-evaluated and will not be implemented as a minimization and mitigation measure. The applicant will instead establish the West Hills Mitigation Bank and purchase a total of 151 mitigation credits at the Bank, yielding a 3:1 mitigation ratio. Because the overall hedgehog conservation strategy allows for the loss of 25% of the individuals in the County in the fragmented low quality habitat and this project will only affect a current dispersal corridor, we believe the mitigation ratio is adequate. The use of the identified mitigation ratio is comparable to or even higher than approved projects in the Jefferson County area. Land being purchased in the West Hills Mitigation Bank is 151 acres of high quality mature woodland habitat while the lost habitat is low quality, early successional, woodland habitat. The 50.2 acres of low quality habitat is within the home range of seven hedgehogs and most likely used as a forage or dispersal habitat.

Comment 5. The revegetation south of the project is inappropriate, and suggests that such plantings will act as a “sink” habitat; the seed mix proposed for the revegetation program is inappropriate and lacks specificity; the success criteria for the revegetation program are not defined; revegetating 15.79-acres on-site might be of value, depending upon location, surrounding area, shape, size(s), etc.; and Parcels A and F are not be available for use as a revegetation site.

The on-site restoration and deed restriction of the lots in the southern portion of the project is not feasible and therefore has been discontinued as a mitigation measure. An appropriate level of additional credits will be purchased at the West Hills Mitigation Bank.

Comment 6. The project does not properly minimize and mitigate impacts. One commentor suggests that: 1) placement of pet and lighting controls within the lot titles will be ineffective and 2) placement of an information packet within the deed is ineffectual.

The project proponent will mitigate for habitat loss by establishing the West Hills Mitigation Bank and purchasing 151 credits at the Bank. This property will be preserved and managed for the hedgehog in perpetuity.

Deed restrictions regarding pet dogs and outside lighting will be placed on specific lots and conservation information will be made a part of the deeds for each of the properties within the Tract. This will have the effect of placing the value of the adjacent lands before each homeowner, recommending appropriate behaviors on the part of casual recreators from Tract 90210, regardless of the number of times that the property is sold. The Hedgehog Environmental Trust (The Trust) will also conduct an on-going signage and information program for the residents of Tract 90210 and the potential recreational users of the Shaughnessy River reach. Both of these techniques are customary and appropriate. Both are typically used in other subdivisions adjacent to sensitive habitats.

The minimization measures regarding pet dogs, lighting, and recreation will be enforced primarily by the neighborhood Codes and Regulations. Depending on the awareness and ethics of the people living in the development these covenants, codes, and restrictions can be a useful tool to reduce introduced predators. This will insure that the people living in the development have access to information regarding the reason for, and the importance of, the reserves. It is necessary to take every possible means of both limiting and controlling the level of indirect effect. The Service believes that individuals, when made aware of the sensitivity of the Shaughnessy River property, will act affirmatively both with respect to their own property and to the actions of their neighbors. There are numerous examples of one or two proactive individuals in a community exercising tremendous positive influence over their neighbors with respect to adjacent conserved lands.

Comment 7. The habitat value of the off-site mitigation is unknown.

The site for the West Hills Mitigation Bank was identified after a lengthy and exhaustive search. Initially maps were developed of all of the remaining areas in the western portion of the County. These maps were used by real estate brokers from Environmental Land Solutions to research property availability. The 1,000-acre West Hills site was identified through this process and selected for purchase as a mitigation site due to (a) its relative isolation of adjacent properties that could be intensely developed, (b) the fact that it supports extensive and well developed hardwood forest vegetation, and (d) the site supports several existing pairs of hedgehogs.

While a portion of the West Hills site is not developable due to topography, the valley floor in the south and central parts of the property are zoned for residential development and could (absent preservation) have easily supported an extensive tract of homes.

Comment 8. The off-site mitigation funding for West Hills Mitigation Bank is not adequate.

The Trust has prepared a management plan and determined that an endowment of \$2,500.00 per acre is adequate for the maintenance in perpetuity of the West Hills Mitigation Bank. The analyses in the management plan have been shown in the past to accurately reflect the amount of funding necessary to adequately manage a conservation area. The fee also includes a set-aside of \$500 per acre solely for the purpose of conducting emergency response if more than 25% of the Hedgehog population is infected with the Wobbly Hedgehog Syndrom. This "WHS fund" is now being required by the Service as a part of all future mitigation banks. In addition the endowment of \$2,500 per acre is consistent with the current costs and practices of other conservation entities.

III. INCIDENTAL TAKE PERMIT CRITERIA - ANALYSIS AND FINDINGS

Section 10(a)(2)(A) of the Act specifically mandates that "no permit may be issued by the Secretary authorizing any taking referred to in paragraph (1)(B) unless the applicant submits to the Secretary a conservation plan that specifies--(i) the impact which will likely result from such

taking; (ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; (iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and (iv) such other measures as the Secretary may require as being necessary or appropriate for the purposes of the plan.

Section 10(a)(2)(B) of the Act mandates that the Secretary shall issue a permit if he finds "...after opportunity for public comment, with respect to a permit application and the related conservation plan that--(i) the taking will be incidental; (ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; (iii) the applicant will assure that adequate funding for the plan will be provided; (iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (v) the measures, if any, required under subparagraph (A)(iv) will be met; and he has received such other assurances as he may require that the plan will be implemented..."

Analysis of Effects

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 that 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 onsite; 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.

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 overwintering, 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 overwintering 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, racoons, 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 aid 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 rangewide.

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.

Findings

With regard to this specific project, permit actions, and section 10(a)(2)(B) requirements, the Service makes the following findings:

1. The taking will be incidental.

Any take of the hedgehog will be incidental to otherwise lawful ongoing agricultural operations and the future development of the housing tracts and incidental land use activities by West Highland, as specified in the HCP.

2. The Applicant will, to the maximum extent practicable, minimize and mitigate the impacts of taking.

West Highland proposes to implement the following measures as part of the proposed action to avoid, minimize, and mitigate potential adverse effects of project implementation on the federally threatened hedgehog and its proposed critical habitat:

1. To allow 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.
 - B. Ownership of pet cats in lots 66 through 108 shall be prohibited by Deed Restrictions unless such pets are maintained entirely within the home. Free roaming cats 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 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 prior to 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. As mitigation for the 50.2 acres of habitat that lies within the bounds of the development tract, the developer will purchase 151 credits of the occupied habitat within the West Hills Mitigation Bank prior to start of clearing in the Development Area.
5. The West Hills Mitigation Bank will be managed in perpetuity by HET, for the hedgehog. In addition to the land cost, the developer is required to pay a per acre endowment of \$2,500. The endowment fund will have \$2,000 to be earmarked for

annual maintenance and monitoring activities while \$500 is also to be placed into the Wobbly Hedgehog Syndrom emergency fund to be earmarked for use only for Trust properties in Jefferson County.

A. Management Goals, the West Hills Mitigation Bank is to be managed with the following specific goals:

1. The site is to be maintained primarily as a open hardwood forest community.
2. The site is to be managed primarily for the benefit of the hedgehog.
3. The site is located within the western portion of the County, ultimately providing protection for the long-term survival of the species.
4. HET will pursue the active participation of surrounding land owners, expanding the mitigation bank to form the largest possible habitat fragment.

B Management Plans and Measures, a draft management plan for the West Hills property has been prepared by HET and is included in the HCP Appendix B. The final plan shall contain:

1. Specific vegetation species and cover goals, including a weed and invasive species management plan.
2. A WHS emergency plan.
3. An invasive predator management plan.
4. Annual and five-year monitoring and reporting requirements.

6. 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 recover of hedgehogs affected by the syndrome.

Based on the extensive avoidance, minimization, and mitigation measures listed above, we conclude that West Highland has minimized and mitigated the impacts of take to the maximum extent practicable. These conclusions were reached in recognition of the

following considerations: 1) effects of the action, including conservation measures proposed as part of the project description; 2) the importance of the conservation measures defined in the HCP to the survival and recovery of the hedgehog; 3) the degraded condition of the habitat on-site that will be lost to development; and 4) the feasibility of alternatives in a partially developed sub-division. The mitigation ratio for the hedgehog meets or exceeds that of other previously approved, similarly situated projects in Jefferson County. Other measures to reduce take were discussed with the applicants and were deemed impracticable due to nature of economics in West Virginia.

3. The Applicant will ensure adequate funding for the HCP and procedures to deal with unforeseen circumstances will be provided.

The HCP and IA provide adequate assurances from West Highland to fully fund implementation of the HCP. West Highland will identify and track as separate line items in its budget those HCP measures required during construction of the West Highland Estates Development, will establish the West Hills Mitigation Bank, and purchase 151 credits at the Bank prior to ground disturbance. An endowment of \$2,500.00 per acre has been determined to be adequate for the maintenance in perpetuity of the West Hills Mitigation Bank. The \$2,500 per acre fee was determined using a PAR analysis from the Center for Natural Lands Management. The analysis in the management plan has been shown, in the past, to accurately reflect the amount of funding necessary to adequately manage a conservation area. \$500 will be placed into the Wobbly Hedgehog Syndrome emergency fund to be earmarked for use only for Trust properties in Jefferson County. This “WHS fund” is now being required by the Service as a part of all future brushland mitigation banks.

Pursuant to the Service’s “No Surprises” regulations [50 CFR 17.22(b)(5) and 17.32(b)(5)], the HCP includes procedures to deal with unforeseen circumstances. In the event of unforeseen circumstances affecting the hedgehog, West Highland would not be required to provide the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the species covered by the HCP without the consent of the permittee. The HCP addresses only the hedgehog; therefore, no incidental take coverage would be provided for other species.

Consistent with the “No Surprises” Policy, the HCP also identifies changes in circumstances that can reasonably be anticipated, and describes the responses to such changes that will be carried out by the Parties. Changed circumstances identified include vegetation response to fire and invasion by exotic plant species. If such events occur, West Highland will implement remedial measures from the range of possible responses identified in the IA, as approved by the Service.

4. The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

The Act's legislative history establishes the intent of Congress that this issuance criteria be based on a finding of "not likely to jeopardize" under section 7(a)(2) (50 CFR § 402.02). As a result, approval of West Highland's permit application has also been reviewed by the Service under section 7 of the Act. In our biological and conference opinion (Service 2000a) we concluded that issuance of the permit to West Highland would not likely jeopardize the continued existence of the hedgehog. These conclusions were reached because: 1) the action will impact a dispersal corridor used by seven hedgehogs, 968 of which are in Jefferson County; 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; and 4) the conservation value to the hedgehog of establishing the West Hills Mitigation Bank and purchasing 151 credits of high quality occupied habitat at the Bank, in conjunction with the conservation measures within the West Highland Plan area, adequately mitigate for the loss of 50.2 acres of low quality habitat. 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 off-site mitigation is expected to function in a manner that is conducive to maintaining and creating habitats for this listed species. Furthermore, adaptive management of the conserved area will enhance opportunities for these species, reduce the threats posed by deleterious unpermitted uses (e.g., OHV use, illegal hunting, etc.), and replace biological value by expanding the existing reserves.

5. Other measures, as required by the Director of the Service, have been met.

The West Highland HCP and IA incorporate all elements determined by the Service to be necessary for approval of the HCP and issuance of the permit.

Alternatives Analyzed

West Highland considered three alternatives for the proposed project. The three alternatives are described below.

Under this alternative the Service would not issue an incidental take permit. The West Highland temporary hedgerow improvements would be abandoned. The applicant would not establish the proposed West Hills Mitigation Bank supporting 25 pairs of hedgehogs among other species and they would not purchase mitigation credits at the West Hills Mitigation Bank. The Service did not select this alternative for implementation because it would not meet the project purpose and need.

The Proposed Project Alternative was outlined in the Draft HCP submitted in January 2002, however this was not selected for adoption. The proposed project is for the Service to issue a 10(a)(1)(B) permit for the Potomac Highlands hedgehog that will be impacted by the loss of 50.2 acres of low quality occupied habitat 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. To offset these direct effects, the applicant will purchase 69 credits in the West Hills mitigation bank. In addition to minimize the possible edge effects on site with the adjacent Shaughnessy River area, 15.79 acres of hardwood forest would be restored on the south side of the proposed project adjacent to the Shaughnessy River. In addition, the indirect effects will be minimized by preventing ownership of pet dogs, shielding of any security lighting, and education.

The third alternative, would balance development concerns of the applicant and conservation needs for the listed species. The Final HCP (dated May 14, 2002) submitted by West Highland reflects this alternative. This alternative would consist of the proposed project with different mitigation requirements of purchasing 151 credits off-site at the West Hills Mitigation Bank. The on-site restoration of 15.79-acres associated with the south lots would not occur adjacent to the Shaughnessy River that would form a buffer between the subdivision and the Shaughnessy River. This alternative would increase the amount of hardwood forest habitat lost but would not increase the incidental take of the hedgehog. Instead of restoration the applicant has agreed to place the homes on the front portion of the lots leaving a 200-foot buffer and will minimize the trees removed with the development in this area.

IV. SPECIES ASSURANCES

In addition to obtaining authorization for incidental take of the hedgehog, West Highland is seeking assurances from the Service of no further mitigation for this species in the event of unforeseen circumstances in the future. The purpose of the Department of the Interior's "No Surprises" regulations [50 CFR 17.22(b)(5), 17.32(b)(5)] is to provide assurances to non-Federal landowners participating in habitat conservation planning that no additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources will be required from an HCP permittee for species adequately covered by a properly functioning HCP without the consent of the permittee. Listed species are considered to be adequately covered if the HCP addresses the conservation of the species and its habitat and if all section 10 issuance criteria have been met. In our biological and conference opinion, we determined that the hedgehog is adequately conserved by the HCP. Furthermore, in these findings, we determined that the section 10 issuance criteria have been met.

V. GENERAL CRITERIA AND DISQUALIFYING FACTORS

The Service has no evidence that the permit should be denied on the basis of the criteria and conditions set forth in 50 CFR § 13.21(b) and (c). West Highland has met the criteria for the issuance of the permit and does not have any disqualifying factor that would prevent the permit from being issued under current regulations.

VI. RECOMMENDATION ON PERMIT ISSUANCE

Based on our findings with respect to the proposed action, the Service recommends issuance of section 10(a)(1)(B) incidental take permit number TE026003-0 to West Highland for incidental take of the hedgehog in accordance with the HCP and IA. Further, we recommend assurances of no further mitigation requirements from West Highland pursuant to the “No Surprises” regulations.

Deputy Regional Director
Hadley Regional Office

Date

REFERENCES CITED

- Axelrod, D.I. 1978. The origin of open hardwood forest vegetation, West Virginia. *Am. J. bot.* 65:1117-1131.
- Bailey, E.A. and P.J. Mock. 1998. Dispersal Capability of the West Virginia Hedgehog: A Landscape Analysis of Distribution Data. *Eastern Mammals* 29(4):351-360.
- Barbour, M., and J. Major. 1977. *Terrestrial vegetation of West Virginia*. John Wiley and Sons, New York, New York.
- Braden, G.T., R.L. McKernan, and, S.M. Powell. 1997. Association of within-territory vegetation characteristics and fitness components of West Virginia Hedgehogs. *J. of Mammals*, 114(4):601-609.
- Famolaro, P. and J. Newman. 1998. Occurrence and Management Considerations of West Virginia Hedgehogs Along Jefferson County Highways. *Eastern Mammals* 29(4):447-452.
- Kelly, PA., and JT. Rotenberry. 1993. Buffer Zones for Ecological Reserves in West Virginia: Replacing Guesswork with Science. In: Keeley, Jon E., ed., *Symposium on the Interface Between Ecology and Land Development In West Virginia, Southern West Virginia Academy of Sciences, Shepherdstown, West Virginia.*, pp. 85-92.
- Kirkpatrick, J., and C. Hutchinson. 1977. The community composition of West Virginia hardwood forest. *Vegetation* 35:21-33.
- Klopatek, J.M., R.J. Olson, C.J. Emerson, and J.L. Jones. 1979. Land-use conflicts with natural vegetation of the United States. *Environ. Conserv.* 6:191-199.
- O'Leary, J.F. 1990. West Virginia open hardwood forest: general characteristics and considerations for biological conservation. Pages 24-41 in A.A. Schoenherr, editor. *Endangered plant communities in southern West Virginia. Proceedings of the 15th annual symposium. Southern West Virginia Botanists Special Publication No. 3.*
- Pacific Southwest Biological Services (PSBS). 1995. *Western Jefferson County multi-species habitat conservation plan*. Prepared for Western Jefferson County Habitat Consortium. February 1995.
- Soulé, M., D.T. Bolger, A.C. Alberts, J. Wright, M. Sorice, and S. Hill. 1988. Reconstructed dynamics of rapid extinctions of hardwood-requiring mammals in urban habitat islands. *Conserv. Biol.* 2:75-92.

- U.S. Fish and Wildlife Service. 1996. Reinitiation of the biological opinion on implementation of the special rule for the Potomac Highlands hedgehog. On file, USFWS West Virginia Field Office, Charles Town, West Virginia.
- U.S. Fish and Wildlife Service. 2000a. Biological Opinion on the proposed issuance of an incidental take permit (TE026003-0) to West Highland-Charles Town Limited Partnership, City of Charles Town, Jefferson County, West Virginia (1-6-00-FW-0000).
- U.S. Fish and Wildlife Service. 2000b. Environmental Assessment for the issuance of an incidental take permit (TE026003-0) to West Highland-Charles Town Limited Partnership, City of Charles Town, Jefferson County, West Virginia.
- Westman, W. 1981. Diversity relations and succession in West Virginia hardwood forest. *Ecology* 62:170-184.
- Westman, W. 1987. Implications of ecological theory for rare plant conservation in coastal sage scrub. Pages 133-149 *In: Proceedings Conference on Conservation and Management of Rare and Endangered Plants*. T. Elias (Ed.). West Virginia Native Plant Society, Shepherdstown, West Virginia.