

**NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF FISH AND WILDLIFE  
ENDANGERED AND NONGAME SPECIES PROGRAM  
ENVIRONMENTAL REVIEW**

**Comments and/or recommendations regarding nongame resources relative to:**

**PROJECT NAME:** #1500-04-0001.2 - Jaylins Holding, LLC

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**COUNTY:** Ocean      **MUNICIPALITY:** Dover/Manchester

**APPLICANT:** Jaylins Holdings, LLC

**PROJECT DESCRIPTION:** Walmart

**AGENCY REQUESTING REVIEW:** LURP

**PROJECT REVIEW OFFICER:** Eric Virostek

**REVIEW DATE:** January 11, 2011

The Endangered and Nongame Species Program (ENSP) has received, and reviewed, the reports prepared by EcolSciences, Inc. entitled, *Analysis of Conceptual Habitat Evaluation Method for Northern Pine Snakes Applied to Block 505, Lots 14 and 15 Twp. of Toms River and Blk 44, Lots 2, 3, 4 (Part), and 5 Twp. of Manchester and Associated Proposed Mitigation Parcels* (November 29, 2010; hereafter referred to as the "Mitigation Proposal") and *Endangered or Threatened Wildlife Habitat Impact Assessment for Block 505, Lots 14 and 15, Twp. of Dover, Block 44, Lots 2, 3, 4 (part), and 5, Twp. of Manchester Ocean County, New Jersey* (Revised November 29, 2010). ENSP has been asked to review these two documents in the context of a settlement discussion concerning the Jaylin Holdings, LLC application (#1500-04-0001.2), which was denied by the Department of Environmental Protection (hereafter "the Department" or "DEP") on March 15, 2010. The comments provided below represent ENSP's evaluation of the impacts to pine snake habitat that will likely occur from the proposed development as well as the potential benefits to pine snake habitat that would likely be realized from the additional measures the applicant is proposing to implement to offset the adverse impacts of the proposed development. These comments are intended to assist the Department's Division of Landuse Regulation as they evaluate the compliance of this application with the Coastal Zone Management Rules at 7:7E-3:38. ENSP was tasked with assessing the biological/ecological consequences with respect to endangered and threatened species of the proposed retail development and the compensatory measures included in the application, specifically, how effectively the impacts to pine snake habitat from the proposed development would be offset by the applicant's proposed habitat acquisition and enhancement activities.

In summer 2010, ENSP developed what it has termed a "Habitat Evaluation Method" (HEM) for northern pine snake habitat in New Jersey. This methodology was developed with input from pine

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snake experts (outside DEP) and their feedback on a draft version helped ENSP to select which habitat parameters to include in the HEM and how much “value” to assign to certain habitat parameters. The underlying premise of the pine snake HEM is that habitat in a particular area can be assigned a relative value of “quality.” A similar approach, known as Habitat Evaluation Procedures (HEP), has been used by the U.S. Fish and Wildlife Service (USFWS) for many years (US Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP), 102-ESM, Division of Ecological Services, Washington, D.C.) in an effort to quantify the value of endangered species habitat on different sites. The DEP’s HEM allows an area’s value to pine snakes to be estimated in units referred to as “pine snake habitat units” (hereafter referred to as “HUs”). HUs for an area are determined by conducting a series of computer-based and field-based evaluations. Habitats with characteristics reflective of high quality pine snake habitat are assigned a higher number of HUs than habitats lacking suitable characteristics for pine snakes. It must be understood, however, that HUs are not an exact or quantitative measurement, but instead provide only a relative estimate of pine snake habitat value that can be used to compare sites and management scenarios.

By applying the pine snake HEM to the habitat on the property where the retail development is proposed it is possible to estimate the overall value (represented in HUs) of pine snake habitat that would be lost as a result of the proposed development. Furthermore, when this method is applied to the habitat on the applicant’s proposed mitigation parcels it is possible to estimate the increase in value to pine snake habitat that would result from the applicant’s proposed habitat enhancement activities.

The overall approach, offsetting adverse impacts to a threatened species habitat through implementing a plan of habitat acquisition and enhancement is the same approach used by the USFWS in administration of the federal endangered species statutes and regulations. In situations where otherwise-lawful activities will result in the “incidental take” of a protected species, the USFWS will consider issuing incidental take permits to allow for losses of endangered species habitat provided that a Habitat Conservation Plan (HCP) – a plan that includes offsetting measures designed to minimize and mitigate impacts – is developed and implemented (<http://www.fws.gov/endangered/esa-library/pdf/hcp.pdf>). When approving an HCP to offset adverse habitat impacts, the USFWS is operating under the assumption that a species population can be maintained or enhanced if offsetting actions are implemented to adequately improve habitat in the area surrounding the area of adverse impact. The current application is following the general HCP paradigm approach and is applying ENSP’s HEM to evaluate the balancing of habitat enhancement activities against the adverse impacts of the habitat destruction associated with the proposed development.

The HEM analysis was conducted for the parcel proposed for development and the mitigation parcels in August 2010 using ENSP’s pine snake HEM and working in collaboration with the applicant’s consultant, Ecolsciences, Inc. Our goal in carrying out this analysis was to determine whether the value of the pine snake habitat lost on the development parcel would be adequately offset by the proposed pine snake habitat enhancement activities.

The applicant’s acquisition and enhancement proposal describes the negative impacts that the proposed development will have on pine snake habitat. This document also describes the benefits

to pine snake habitat of the proposed enhancement projects. In most cases the proposed pine snake enhancement activities are described in adequate detail by the applicant for ENSP to understand exactly what steps would be taken to improve habitat for pine snakes. In other cases, however, while the general concepts and types of pine snake habitat enhancements were described, important details were not provided (e.g. targeted residual canopy closure for forest thinning and species mixes for warm-season grass planting). Therefore, in the review that follows, certain specifics with respect to how the habitat enhancements should be carried out were added by ENSP and some of the details of these activities provided below may not have been originally proposed by the applicant. If the applicant is unwilling to add the specifics provided by ENSP to their mitigation proposal then DLUR should not rely on the conclusion made in this review and the applicant should be asked to revise its submission to provide the necessary detail on the specifics of the proposed habitat enhancements so that ENSP can more carefully evaluate the ability of these measures to offset the impacts of the proposed development.

*Proposed Development:*

The applicant is proposing to construct a WalMart shopping center and associated structures (access road, parking lot, stormwater detention basin, etc.) on a 17-hectare (42-acre) parcel that is known to contain northern pine snake habitat. During a 2005 site assessment, it was determined that northern pine snakes were using this site for foraging and overwintering (denning). In August 2010, we applied ENSP's pine snake HEM to this parcel and estimated that, in its current state, this parcel has a value of 74.3 HUs. ENSP's estimate of pine snake HUs was averaged with Ecolsciences' estimate for this parcel and we agreed upon a current total pine snake habitat value of 70.2 HUs for the property, or a mean score of 5.53 HUs/ha.

Taking into consideration the site plans for the proposed development, ENSP and Ecolsciences estimated the amount of "habitat value" that would be lost from this parcel as a result of completing the proposed development. As habitat on the parcel is disturbed and developed there would be a direct loss of 7.63 ha of pine snake habitat with a mean habitat value of 5.53 HUs/ha, or a total loss of 42.2 HUs. Additionally, 2.90 ha of current pine snake habitat on the parcel would not be directly impacted, but would experience secondary impacts and a diminution of an estimated 60% of their current value. We therefore calculated this loss in value as follows:

2.90 ha x 5.53 HUs/ha x 0.60 reduction in habitat quality = 9.6 HUs lost

By combining the estimated value of habitat lost from the direct (42.2 HUs) and secondary (9.6 HUs) impacts of the proposed development ENSP concludes that, as proposed, the development would result in a lost of 51.8 HUs for pine snakes. It is this value that must be offset by the proposed pine snake habitat enhancement activities in order for pine snake habitat in the region to experience no net loss in overall value.

**Total habitat value lost = 51.8 HUs**

### *Acquisition and Enhancement Parcels:*

The applicant is proposing to implement habitat enhancement activities on 5 parcels to offset the estimated losses in pine snake habitat that would result from the proposed development. The specifics of these sites are described within their mitigation proposal (*Analysis of Conceptual Habitat Evaluation Method for Northern Pine Snakes Applied to Block 505, Lots 14 and 15 Twp. of Toms River and Blk 44, Lots 2, 3, 4 (Part), and 5 Twp. of Manchester and Associated Proposed Mitigation Parcels* - November 29, 2010) and two of the sites (“Manchester Parcel”, blk 75.01, lot 3 and the “Beckerville-road Parcel”, blk 77, lots 2, 4, 5, & 6) were previously reported on, in detail, by ENSP during the initial submission of this application (report dated March 12, 2010). For the purpose of this review, we are focusing on the proposed habitat enhancement of each site rather than describing the current condition of each parcel. Only the habitat enhancements will be considered as offsets to the losses in pine snake habitat and not the current conditions of the sites or the acquisition of each parcel. In fact, in our evaluation of the applicant’s mitigation proposal no value was assigned to the outright preservation of each parcel where the habitat enhancements would be carried out. Proposed habitat enhancements of mitigation sites are described below and are ordered by the estimated habitat enhancement value, with the parcels having highest added habitat value (most “HUs” added) described first.

*Block 77, lots 2, 4, 5, & 6 (“Beckerville-road Parcel”)* – As described in the applicant’s mitigation proposal, enhancements are being proposed in three distinct areas of this property. The first is a 4.0-ha area that borders Beckerville Road and extends 100 meters away from the road and into the site. Habitat enhancements in this area will include removing debris piles, removal of existing deciduous trees non-native to the Pinelands, and replanting the entire area with a mixture of native pine (*Pinus*) and oak (*Quercus*) species (species mix to be determined). This area will be planted as a dense forest stand so that pine snakes are not attracted to the area to bask or nest. Planting this portion of the parcel with native trees increases its value to pine snakes in an amount that has been estimated to be 1.0 HU/ha, using the Department’s HEM, for a total increase of 4.0 HUs.

Enhancements are also proposed in a 4.5-ha section of the field that abuts the area describe above. In this area the debris piles and existing non-native orchard trees should be removed. The ground will be scarified and the area revegetated with a mixture of warm season grasses (35% Switch Grass, 25% Little Bluestem, 25% Broom Sedge and 15% Indian Grass) obtained from local Pinelands nurseries and using local genotypes (where applicable). Additionally, a sparse planting of native pine (*Pinus*) and oak (*Quercus*) species (species mix and density be determined) would be carried out in this area. In the most southerly portion of this area (furthest from the road) the applicant is proposing to create nesting habitat for pine snakes by bringing in 100 yd<sup>3</sup> of sandy soil. To my knowledge the intentional creation of pine snake nesting habitat by “importing” sandy soil to an area has not been attempted in New Jersey, however this method has been successfully used to create wood turtle nesting habitat in the state (Zarate *per. comm.*). Because the availability of suitable nesting habitat is a limiting factor for this species in New Jersey (Golden et. al. 2009), the creation or enhancement of such habitat could provide great value to individual pine snakes in the area. In order to make the created nesting habitat useful for pine snakes, the depth of the soil placed on the site should be a minimum 15 inches in order to allow for tunnel/chamber excavation by pine snakes (Burger and Zappalorti 1991). Additionally , the total area of the created nesting habitat should be no less than 0.25 acres and therefore the amount of soil required for this extent of nesting

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habitat creation is closer to 500 yd<sup>3</sup>. The soil used for nest site creation should be either Lakehurst, Woodmansie, or Lakewood soil, and should be obtained from a local source and be free of plants non-native to the Pinelands. Based upon this habitat enhancement there would be 2.5 HUs/ha applied to this 4.5-ha area for a total increase in pine snake habitat value of 11.3 HUs.

The 5.9-ha forest patch that exists on the eastern portion of the site (as depicted in Figure 8 of the applicant's mitigation proposal) was visited by Dave Golden, of ENSP on August 26, 2010. This portion of the forest is somewhat densely stocked and it is ENSP's expert opinion that the value of this habitat for pine snakes would be increased by mechanical forest thinning resulting in a residual canopy cover of 65%. This thinning should be carried out using equipment that exerts low ground pressure and during the months of November through March. All cut materials should be removed from the site, but a single brush pile of branches and trunks (measuring 10 to 15-feet in diameter and 6 to 8 feet high) should be left on site to serve as a refugia for snakes and other wildlife. Only coarse woody debris should be left in this pile (no 'chipped' materials). If the applicant includes these activities on this portion of the forest we would consider the increase of value to pine snake habitat to be 1.5 HUs/ha. Therefore, this 5.9-ha area would be assigned a total increase in habitat value of 8.9 HUs.

For the enhancements of this site to be valuable to pine snakes, the applicant must also include measures to assure that off-road vehicles (ORVs) would be prevented from access to the site. Therefore, the total potential pine snake habitat enhancement value of 24.2 HUs would be applied to this site if the applicant includes the needed measures to prevent ORVs from entering the site. Piles of large stumps placed across access roads seem to be an effective way to reduce or prevent ORV access, and provide a secondary benefit of creating habitat for reptiles and other wildlife. Therefore, ENSP recommends using stump piles to block access to the site as the preferred method of dealing with the ORV access issue. However, other approaches may also be acceptable.

**Total proposed enhancement value = 24.2 HUs**

*Block 75.01, lot 3 ("Manchester Parcel")* - The Manchester parcel is the most proximate mitigation property to the proposed development. Enhancements on this mitigation property would therefore be the most meaningful to the individual pine snakes that would experience a loss of habitat (and potential abandonment of a den site) following the development of the Walmart site. The construction of 3 artificial hibernacula are proposed on this property in the areas designated on Figure 4 of the applicant's mitigation proposal. These hibernacula should be constructed by placing large tree trunks (in a crisscrossed pattern) into excavated chambers measuring 8' x 8' and 6' deep. The details of this design are roughly captured in Figure 5 of Ecolsciences, Inc.'s report entitled, *Endangered or Threatened Wildlife Habitat Impact Assessment for Block 505, Lots 14 and 15, Twp. of Dover, Block 44, Lots 2, 3, 4 (part), and 5, Twp. of Manchester Ocean County, New Jersey* (Revised November 29, 2010). A representative from ENSP should be on-site during the construction of these hibernacula to provide input on the final design and construction methods.

Each artificial hibernaculum should be constructed in a 100' x 100' area that has been cleared of all vegetation and tree roots. Once the hibernacula have been constructed the area should be seeded with the warm-season grass mix described for the Beckerville-road site.

Additionally, thinning of the forest on this site should be carried out in a same manner described for the 5.9-ha forest patch of the Beckerville-road parcel, but with a target residual canopy cover of 60%.

When these enhancement activities are applied to 8.3 ha of this site, the pine snake habitat would increase in value by 1.25 HUs/ha, for a total increase in pine snake habitat value of 12.5 HUs on this property.

**Total proposed enhancement value = 12.5 HUs**

*Block 73, lot 21 (“Cranberry Bog Parcel”)* – This parcel currently contains roughly 4.9 ha of pine snake habitat (as mapped using DEP’s SBP pine snake habitat mapping), but is comprised of a densely stocked forest stand with a closed canopy. Pine snake habitat could be enhanced in the 3.0 ha of uplands on this parcel if the forest is thinned and small openings are created. This is what is proposed by the applicant and ENSP agrees that such enhancement activities would increase the habitat value of the 3.0 ha of uplands by 2.0 HUs/ha, or a total of 6.0 HUs. Specifically, the 3.0 ha of forested uplands on the site would be thinned using the methods described for the Beckerville-road parcel with a resultant residual canopy closure of 60%. Additionally, two 1-acre openings are to be created on this parcel (one on the northern property boundary and one on the southern property boundary) to create nesting habitat for pine snakes. These openings would be created using the same methods described for the “Manchester Parcel” and would be seeded using the warm-season grass mix describe above.

**Total proposed enhancement value = 6.0 HUs**

*Block 77, lot 27 (“Hurricane Branch Parcel”)* – This parcel contains 3.7 ha of mapped pine snake habitat, but, similar to the Cranberry Bog Parcel, much of the forest is densely stocked with a closed canopy. Therefore, habitat enhancement opportunities for pine snakes exist through forest thinning and the creation of small patches that could be used as nesting habitat for pine snakes. The applicant is proposing to thin the 3.7 ha of pine forest on the site (as depicted in Figure 7 of the mitigation proposal). ENSP agrees that forest thinning would be beneficial to pine snakes in the area and, using the HEM, we estimate that an increase of 1.5 HUs/ha would be gained (over the entire 3.7 ha of pine snake habitat) by this form of enhancement, for a total increase of 5.6 HUs for this parcel.

**Total proposed enhancement value = 5.6 HUs**

*Block 44, lots 2, 3, 4 & 5 - in part (“Project Site”)* – As described earlier, a 5.1-ha portion of the project site would remain undeveloped. Some of this undeveloped area will be in such close

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proximity to the proposed Walmart (and associated structures) that it would have little remaining value to pine snakes. However, a 2.17-ha portion of the undeveloped area on this parcel would be distant enough from the retail store, roads, and parking lots that we agree with the applicant's assertion that there would be no loss in value to habitat in this small area. This presents an opportunity for the applicant to carry out habitat enhancement activities to benefit pine snakes on this 2.17-ha portion of undeveloped habitat. The applicant has proposed such enhancements and we agree that there would be value added by thinning the forest in this area. Carrying out habitat enhancements in an area so proximate to a planned development is often unadvisable because it has the potential to attract wildlife to human structures/activities and can therefore put animals at risk. In this particular case, however, we view these enhancements as positive because, in contrast to most of the other proposed enhancement activities, these enhancements would directly benefit the individual pine snakes that would be affected by the loss of habitat associated with the proposed development (enhancements on the "Manchester Parcel" will also benefit these individual snakes). The proposed forest thinning should be carried out in a same manner described for the 5.9-ha forest patch of the Beckerville-road parcel, to achieve a residual canopy cover of 60%. Thinning the forest in this area would result in an estimated increase in value to pine snake habitat of 1.25 HUs/ha, or a total increase of 2.7 HUs for this 2.17-ha area.

**Total proposed enhancement value = 2.7 HUs**

*Block 73, lots 31 & 32 ("Ruckels Branch East Parcels")* – The Ruckels Branch Parcels are primarily comprised of forested wetlands, which limits the scope of habitat enhancements that could be carried out for pine snakes on the property. However, some small upland areas do exist on these parcels and the parcels are located within a very large forested patch (much of which is on state-owned wildlife management area). One element that appears to be missing for pine snakes in this large forested patch is the availability of suitable nesting habitat. Therefore, pine snakes using this area would benefit from the creation of nesting habitat on the Ruckels Branch Parcels. The applicant is proposing to create two 1-acre openings on this property (in locations shown on Figure 5 of the mitigation proposal) to serve as pine snake nesting habitat for snakes inhabiting the surrounding forest. Once the applicant creates these openings in the same manner that we described for the "Manchester Parcel," we estimate that the property would increase in value to pine snakes by a total of 2.0 HUs.

**Total proposed enhancement value = 2.0 HUs**

*Conclusion and Summary:*

The applicant has proposed a number of enhancement activities that will increase the suitability of pine snake habitat on the five parcels separate from, but within 6.5 miles of the development parcel, as well as on a portion of the development parcel. The total habitat value that would be added by these enhancement activities was estimated using ENSP's pine snake HEM and then compared to the estimated value of pine habitat that would be lost as a result of the proposed development. In

reaching a determination of “no net loss in habitat value” ENSP has considered the general area circumscribed by the development site plus all of the acquisition and enhancement sites included in the application. When preparing their proposal, the applicant approached the “no net loss” concept at a relatively broad scale and has proposed the majority of the beneficial enhancement activities in areas that are more distant from the proposed development site than individual pine snakes have been documented to move. Therefore, most of improvements in pine snake habitat gained by implementing the enhancement activities would benefit members of the regional pine snake population other than those individual snakes that would experience losses in habitat. However, the implementation of the proposed habitat enhancements would provide substantial improvements to pine snake habitats in this general area, and, if the applicant’s mitigation plan is evaluated at the spatial scale at which it is proposed, we can conclude that there will be no net loss to pine snake habitat value in this region; i.e., no net adverse impact to pine snakes in the area, provided the recommendation, specifications and modifications described in this document are followed. We estimated that a total of 51.8 HUs for pine snakes would be lost by the development and that the implementation of the mitigation proposal would result in an increase of 53 HUs for pine snake (for a net increase of 1.2 HUs at this spatial scale).

In order for “no net loss” of pine snake habitat to be achieved, the implementation of the proposed habitat acquisition and enhancements must be carried out and completed prior to the initiation of the proposed development. Otherwise, the losses of pine snake habitat associated with the development would not be offset by the enhancement projects and pine snakes would experience a loss in habitat value for a period of time. Similar to the requirements of freshwater wetlands mitigation (N.J.A.C. 7-7A-15.16), the applicant needs to show that the enhancement activities are fulfilled as proposed and the enhancement activities should be monitored and modifications/additions should be made as needed to reach the net gain in habitat units. The applicant needs to show the successful establishment of the proposed tree and warm-season grass plantings. Finally, the parcels where this work is proposed must be protected by some form of permanent preservation. If these parcels are transferred over to State-ownership or control, then a realistic maintenance fee should be applied; the DEP’s Green Acres Program usually requires such a fee.