



United States Department of Interior



FISH AND WILDLIFE SERVICE Florida Caribbean Migratory Bird Field Office

P.O. Box 739
Midway, Florida 32343

January 13, 2014

Bill Killingsworth, Director
Division of Community Development
Florida Department of Economic Opportunity
107 East Madison Street
Tallahassee, FL 32399

Dear Mr. Killingsworth:

This letter from the U.S. Fish and Wildlife Service (USFWS) Florida/Caribbean Migratory Bird Field Office (FCFO) to the Florida Department of Economic Opportunity (DEO) provides comments and recommendations regarding the proposed construction and operation of the Crane Point Eco-Adventure Canopy Tour Program, a recreational zip line at Crane Point Hammock in Marathon, Florida, within the Florida Keys (Keys). The proposal was submitted under a U.S. Department of Urban Housing and Development (HUD) grant and DEO has responsibility for administering these grants. The DEO Areas of Critical State Concern Program has a particular responsibility to protect resources and public facilities of major statewide significance and the Keys are an Area of Critical State Concern. The USFWS, and in particular the Migratory Bird Program, oversees all avian species identified under the Migratory Bird Treaty Act of 1918, as amended (40 Stat. 755; 16 U.S.C. 703 *et seq.*) (MBTA), and works with partners to promote avian diversity and populations. The MBTA makes it illegal for anyone to “take” (i.e., kill, pursue, hunt, or capture) any migratory bird or parts, nests, or eggs thereof except under the terms of a valid permit issued pursuant to Federal regulations. The USFWS Ecological Services Program can provide comments and guidance regarding federally listed and candidate species under the Endangered Species Act of 1973, as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*) (ESA).

We have reviewed documentation provided by the City of Marathon at the request of DEO regarding the construction and operation of the proposed zip line project. Although the proposed project could affect habitat for many birds such as hawks and other neotropical migrants, we are limiting this discussion to one species that is most at risk of potential impacts, the white-crowned pigeon (*Patagioenas leucocephala*). Of note, although we have learned that this project was proposed over two years ago, to our knowledge neither the USFWS nor the Florida Fish and Wildlife Conservation Commission (FWC) was consulted for official comment during earlier

portions of the proposal preparation or review process by the Florida Land and Sea Trust, City of Marathon, their consultants, or Florida Department of Environmental Protection.

Status of the White-Crowned Pigeon

Because the proposal is being submitted under a federal grant program administered by the State of Florida, it is important to describe both the federal and state legal status of the white-crowned pigeon. Additional resource needs of the species itself, both in Florida and rangewide, are discussed in the next section.

Federal Status of the White-Crowned Pigeon

The white-crowned pigeon is protected under the federal MBTA and take is prohibited as described in the introduction. In addition, the USFWS has identified Bird Conservation Regions (BCR) throughout the U.S. and determined Birds of Conservation Concern (BCCs) for each BCR (Service 2008). The BCCs are species that represent our highest conservation priorities, many of which are in decline population-wide and could become candidates for federal listing under the ESA unless additional conservation actions are instituted to reverse current trends. The white-crowned pigeon is listed as a BCC in the Florida Peninsula BCR that includes the Keys. In the U.S., the pigeon is migratory, nesting in southern Florida and the Keys with most spending the winter on Caribbean islands. In the Keys, the pigeon nests primarily on mangrove islands such as those found on the Great White Heron National Wildlife Refuge (NWR) and Key West NWR (Wilmers 2012). During nesting season, the pigeon must fly to other islands to forage on fruits within the relatively few remaining tropical hardwood hammocks in the Keys, such as those found at Crane Point Hammock; thus, hammock foraging grounds are as essential as nesting grounds in order to ensure successful breeding and continued success of this species. Of note, Crane Point Hammock is one of the largest remaining tracts of hardwood hammock forests in the Keys and is one of the closest to the primary nesting grounds (Wilmers 2012). The importance of Crane Point Hammock to this species is further described in subsequent sections of this letter.

State-listed Status of the White-Crowned Pigeon

The white-crowned pigeon is listed as a threatened species by the State of Florida. Following a recent FWC Biological Status Review, staff recommended that the pigeon remain a threatened species and FWC Commissioners advised staff to move forward with the process. As a result, a Draft Species Action Plan (SAP) for the white-crowned pigeon has been developed to *“improve the white-crowned pigeon’s status to the point that the species is secure within its historical range”* with the primary objective being to identify the Conservation Actions needed to maintain a stable or increasing population in Florida over the next ten years (FWC 2013). The SAP advises that the continued success of the pigeon is reliant on hardwood hammocks in both public and private ownership, and mentions Crane Point Hammock by name. The SAP prioritizes these conservation actions with one of the top three Habitat Conservation Management actions being to *“reduce clearing and degradation of tropical hardwood hammocks in Florida through coordination and education”*, and two of the top three actions for Monitoring and Research being to *“identify core foraging areas throughout the Florida range”* and *“determine foraging patterns and ranges for known populations”*. Therefore, the FWC views availability of foraging opportunities as one of the most important needs for the pigeon’s continued survival.

The following excerpt from the SAP indicates that “take” of the white-crowned pigeon through “harm” includes actions to the species and/or habitat that can impair essential behavior patterns such as breeding and feeding (or in this case potentially both in regard to access to foraging grounds during nesting season): *“Some impacts to mangrove islands and tropical hardwood hammocks may result in the ‘take’ of white-crowned pigeons. According to Rule 69A-27.001, [Florida Administrative Code], take is defined as ‘to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct.’ The term ‘harm’ includes actions that significantly modify or degrade habitat where it kills or injures wildlife by impairing essential behavior patterns, including breeding, feeding, or sheltering”* (FWC 2013).

In addition to being protected under the MBTA, a federal BCC, and a state-threatened species, the white-crowned pigeon global population is identified as “Near Threatened” according to the International Union for Conservation of Nature (IUCN) Red List Category and Criteria due to intense habitat degradation and deforestation (BirdLife International 2008), such as loss of foraging grounds.

Relevant Resource Needs and Behavior of the White-Crowned Pigeon

The white-crowned pigeon in the U.S. is migratory, with most spending the winter on Caribbean islands. In the U.S., the pigeon is found and breeds only in extreme southern Florida and the Keys, nesting from May to early September (FWC 2013). Productivity, nest numbers, and onset of nesting have been strongly correlated to food supply and availability (Bancroft et al 2000a and 2000b, Bancroft and Bowman 2001), thus foraging opportunities are critical during nesting season and have been suggested as the most important factor for the species conservation in Florida (Bancroft 1996). In addition, access to quality foraging areas is important to adult pigeons prior to migrating long distances over water to Caribbean islands.

Young white-crowned pigeons require large tracts of hardwood hammock (5-20 hectares) for initial landing sites within the first two days of fledging, perhaps for increased protection from predators or humans (Strong and Bancroft 1994, Bancroft and Bowman 2001). Only a few large tracts such as Crane Point Hammock remain in the Keys, and their protection is critical to the success of white-crowned pigeons in Florida (Bancroft and Bowman 2001, FWC 2013).

The pigeon also seems to require undisturbed foraging hammock areas to digest after an extensive bout of foraging. While capturing white-crowned pigeons for banding in order to learn more about their behavior, Meyer and Wilmers (2007) noted that the pigeons gorged on fruit in a small area and then appeared to need to hide, rest, and digest in the trees before flying. If captured after foraging, the pigeons appeared as if in shock and moved to the ground to hide where they could be vulnerable to predators. This was a heretofore undocumented behavior, may be an important consideration when reviewing potential impacts to the pigeon from human activities particularly during nesting season, and warrants further research.

Human disturbance of foraging white-crowned pigeons has been documented. Bancroft and Bowman (2001) note that the birds are very nervous, skittish, and easily flushed from both nesting and foraging areas. Birds have also been observed flushing from suburban areas when humans walk or jog by (Bancroft and Bowman 2001). Further, researchers conducting studies near the Marathon Airport observed on numerous occasions that although white-crowned

pigeons were in the area, each time an airplane departed, the pigeons would always flush (Ken Meyer, Avian Research Conservation Institute, personal communication, 2013).

Other human-related disturbance can result in actual mortality of the white-crowned pigeon. For example and of particular relevance to this discussion, collisions with man-made objects such as power lines have been a major source of mortality of the pigeon (Bancroft 1996, Bancroft and Bowman 2001). During these studies, dead white-crowned pigeons were regularly observed along roadsides underneath single power lines. As these were single power lines with no multiple lines for electrical transference, and with no evidence of electrocution such as burnt feathers, the likely cause was due to collisions.

Additional research needs to be performed in relation to white-crowned pigeon behavior, nesting status, foraging locations and needs, and other life cycle variables. Currently, due to our continued concern regarding the status of the white-crowned pigeon in the U.S., pigeons in the Keys are part of a new international satellite-tracking study being partially funded by the USFWS to further determine behavior and potential threats.

Crane Point Hammock and Importance to the White-crowned Pigeon

According to the Crane Point Hammock website, the Florida Keys Land Trust was created in 1976 in an effort to save the hardwood hammocks of the Keys, and is now a non-profit organization called the Florida Keys Land and Sea Trust (Trust) (<http://www.cranepoint.net/history.html>). The Trust purchased the 63-acre Crane Point Hammock in 1989 in order to protect it from scheduled development. As stated on the website, "*Crane Point is undisputedly an ecological and cultural treasure...and sheltered amidst its tropical forest are numerous rare and endangered species*". Crane Point Hammock contains one of the largest remaining parcels (40 acres) of tropical hardwood hammock in the Marathon area (TES 2013), and remaining in the Keys. It contains the most diverse hammock species in the Middle Keys, and supports 65% of the 34 tree species upon which the pigeon feeds (Ehrig 2013).

Reduction in the extent and number of hardwood hammocks in the Keys is well-known. For example, between 1991 and 2004, there was a 31% reduction in hardwood hammock habitat in the upper Keys, primarily due to development (Karim and Main 2009). Strong and Bancroft (1994) also noted that the Keys have already been diminished greatly by development, and similar trends are likely as hammocks continue to be lost (Wilmers 2012).

Due to continued concern regarding the status of the white-crowned pigeon, for several years the USFWS has been conducting nesting surveys on mangrove islands as well as directional flight counts from these islands as adults leave to forage (Wilmers 2012). Based on mean high nest counts (2000-2013) within the Florida Keys National Wildlife Refuge Complex, six of the ten largest white-crowned pigeon nesting colonies were on the eastern-most islands of Great White Heron NWR (East Bahia Honda, Coconut, Teakettle, Horseshoe, West Bahia Honda, and Hardup Key). These are also the nesting islands nearest to Crane Point Hammock (see Attachment), and for birds that depart these islands in a southeasterly direction toward Marathon, the hammock is the closest large contiguous foraging area encountered. Of note, the number of white-crowned pigeons nesting in Key West NWR declined significantly in 2005 as a result of hurricanes affecting both nesting and foraging sites. Since 2005, preliminary analysis indicates a potential

corresponding nesting increase of up to 65% on islands within Great White Heron NWR (Wilmers 2012); thus, these eastern islands are of even greater importance than in the early years of the study.

Although information on the optimal least foraging distance for pigeons to travel are not available, in general, the least distance traveled saves energy and time to allow for greater efficiency in foraging and feeding of young. In addition, as future hurricane and other natural variables could affect additional nesting and foraging areas, it is even more important to protect the remaining hammocks in order to have the largest extent available. Therefore, continued nesting opportunities on the eastern islands of Great White Heron NWR and foraging opportunities in nearby areas such as Crane Point Hammock are likely critical to the continued survival of the white-crowned pigeon population in the U.S.

Proposed Crane Point Eco-Adventure Canopy Tour Zip Line

We have reviewed several documents made available by the City of Marathon at the request of DEO. Although the primary document reviewed and discussed below is the Natural Resources Impact Assessment (Assessment) (TES 2013), we also received and reviewed the Crane Point Survey, Crane Point Management Plan dated April 5, 2013, Preliminary Civil Package, Traffic and Safety Studies, City of Marathon Resolution 2013-41, two graphic depictions of the project, and application documents. Of note, there are no literary references contained in any of the documents to support or justify claims made therein regarding the white-crowned pigeon or hammock habitat.

The Assessment advises that the proposed project will impact an “*insignificant amount*” of upland hardwood hammock habitat that is available to the white-crowned pigeon in the Marathon area. However, as discussed above, the pigeon requires large, contiguous, and undisturbed hammock areas for optimal foraging, particularly during nesting season. Because Crane Point Hammock is the closest large hammock area on Marathon to the primary pigeon nesting islands, we believe the area is likely an important foraging source and necessary for continued nesting success.

The Assessment indicates that there will be only “*minimal impacts*” to hardwood hammock habitat at Crane Point Hammock (TES 2013). This is primarily based on the physical extent of hammock that will be removed during construction of the zip line features, estimated at 12,508 square feet or 0.7% of the total available hammock on the property. The Assessment also concludes that “*any measureable adverse impacts to wildlife are highly unlikely*” except for minimal temporary disturbance. No referenced documents substantiate this view. Although the vegetation trimming of 10 feet wide along the zip line features is discussed briefly with no impacts mentioned, it will actually constitute an ongoing activity and potential disturbance, as well as creating unfavorable edge and removing contiguous canopy habitat. The Assessment further advises that if trimming will be too extensive or impact the survival of the tree, then the tree will be removed. Impacts to the hammock or wildlife species due to construction activities such as heavy equipment use are not discussed, except related to using roads when possible and auguring into the caprock (TES 2013), likely creating noise and vibration over a long distance.

The Assessment only reviews impacts related to the physical footprint of the zip line. However, there will be what could be termed a “zone of impact” to the white-crowned pigeon surrounding the zip line during both construction and operation phases that would likely extend well past the 10 feet of vegetation trimming. In particular, the presence of staff and the public actively using the zip lines and platforms is not discussed in the Assessment. If this is a successful enterprise, there will be continuous human presence and noise along what could be an exhilarating experience such as shouting, physical rapid movement through the trees, and noise from the zip line itself when being used. Decibel ratings for zip lines may be useful to ascertain potential disturbance.

The Assessment concludes that the white-crowned pigeon will acclimate to the noise and human disturbance over time and will come to see the zip line as a “*benign feature*” (TES 2013). However, no references are provided for this view and only casual observation examples and justifications are given for pigeons being seen near other human activities in the Keys. Of note, although pigeons may be seen near human activities, it does not mean that they are not disturbed when foraging. In earlier sections we provided several references that the pigeons are very skittish such as when humans walk or jog by, do not tolerate human presence or noise well, and require large contiguous areas in which to forage effectively, particularly during nesting season and the very vulnerable juvenile stage when first foraging. Thus, it is possible and even likely that negative impacts to the pigeon due to humans actually moving rapidly through the canopy may be a greater disturbance and result in a wider zone of impact than a slower activity taking place on the ground (walking trails/running trails).

Of potential even greater importance related to take, collisions with power lines have been documented as a cause of mortality for the white-crowned pigeon (Bancroft 1996, Bancroft and Bowman 2001). The proposed zip line project will consist of hundreds of yards of cables that stretch through the canopy similar to a power line and could potentially result in pigeon mortality. As the lines will actually be located within the canopy in only a 10-foot wide opening, they may be even less visible to pigeons than power lines in open areas, and could result in a greater incidence of direct take as the birds fly through the forest to forage and collide with the unseen cable. Take of pigeons resulting from collisions with human-constructed zip line cables or other structures could be a violation of the MBTA and State regulations.

In the Assessment, hunting in Caribbean countries is given as the greatest threat of mortality for the pigeon across its range. Further, the document indicates that nesting areas are in mangrove habitat and that “*upland areas such as Crane Point are used for foraging only, not nesting*” (TES 2013). While true, the implication that the foraging areas are not as important as nesting habitat is misleading in the context used. Loss of breeding-related habitat and particularly foraging grounds is also a major impact and serious threat in Caribbean countries as well as in its very limited U.S. range, could have serious long-term implications for the species, and protections should be a high priority (Bancroft and Bowman 2000a and 2000b, 2001). Because of our continuing concerns, the USFWS and other entities are working with various countries to not only develop management guidelines for hunting of the pigeon, but also for instituting protection of nesting and foraging grounds and promoting public education. It remains important to protect nesting and foraging grounds in the U.S. as well as in other countries.

The Assessment discusses wildlife in the hammock and that “*actual occurrence on these species may only be determined through detailed on-site investigations, but potential occurrence may be established based on suitable habitat conditions and the known range and habitat affinities of the various species*” (TES 2013). Of note, again, there are no literary references related to discussion of range, habitat, resource needs, behavior, or potential impacts to the white-crowned pigeon or hammock. Although we are aware that some authors of the document may be familiar with the pigeon in relation to the Keys and Refuge Complex, additional information has become available over the last few years that may not have been considered when preparing this document (see references and discussion in the previous sections). For example, ever since the 2005 hurricane season, the Key West nesting and foraging areas are almost non-existent leading to greater reliance on the Middle Keys areas, in particular the eastern portion of the Great White Heron NWR and the nearby large contiguous hammock foraging areas such as Crane Point Hammock. Also of note, the Trust has been aware of concerns from environmental organizations regarding the pigeon for over two years, thus allowing time to have conducted extensive monitoring for presence and use of the area by pigeons. To our knowledge, no monitoring has been performed.

USFWS Official Recommendation

The USFWS is not averse to zip line recreational opportunities in all areas, but we do have concerns regarding their use in rare habitats containing at-risk species. We strongly recommend that the zip line project not be approved and/or constructed within Crane Point Hammock due to: potential adverse impacts to the white-crowned pigeon and their habitat as outlined above and supported through literary documentation; lack of detailed information on the pigeon within Crane Point Hammock; lack of information on the extent of how this project could affect the white-crowned pigeon breeding population and habitat in Florida and the species rangewide; and the proximity, size, and quality of this important foraging habitat to the most productive pigeon nesting sites within the Keys.

In the event the zip line is established and direct or indirect take of the white-crowned pigeon is documented, the USFWS Office of Law Enforcement (OLE) will be notified regarding the potential MBTA violation. The OLE will gather facts associated with any MBTA violations and present them to the U.S. Attorney's Office for potential prosecution. The USFWS OLE and the U.S. Attorney's Office will take into account this official USFWS recommendation to not place the zip line at Crane Point Hammock when investigating possible violations and potential penalties.

USFWS Secondary Recommendations

Although as above we strongly recommend this project not move forward at Crane Point Hammock, in the event the project is considered for approval we provide the following recommendations and believe all would be necessary in order to identify and minimize potential impacts to the white-crowned pigeon:

1. Prior to considering approval of this project, intensive on-site investigations should be performed to determine the extent and use of the hammock area by the white-crowned pigeon in order to subsequently identify the extent of potential negative impacts of the zip line construction and operation on the local population and species. This would include a multi-year monitoring

study of the pigeon conducted by an objective, highly experienced, and reputable research technician familiar with white-crowned pigeon behavior, and using a rigorous and accepted protocol. A 2-year study may be adequate depending on protocol and results. We recommend consulting with USFWS and FWC to determine whether the monitor and protocol chosen are appropriate. Approving this project prior to receiving the results of such a survey and the estimated impacts could result in establishment of the zip line leading to potential take of pigeons directly or on nesting grounds if chicks were impacted or nests were to fail.

2. If the project is considered for approval, a zone of impact to the white-crowned pigeon during both construction and operation phases should be developed taking into account the equipment, physical structures, and human element, rather than just the physical footprint of the zip line course. Potential impacts to the pigeon should be determined using this zone of impact as well as estimating the overall decrease in foraging opportunity throughout the hammock in order to determine whether the project should be approved. We recommend consulting with USFWS, FWC, and white-crowned pigeon experts in order to determine the potential extent of the zone required.

3. If all previous recommendations are met and the project is considered for approval, construction activities should not occur during the white-crowned pigeon breeding season in order to allow for adequate foraging opportunities for adults and fledglings. This timeframe is generally May through early September. In addition, because large hammocks are particularly important to juveniles that have just fledged, we recommend not beginning construction until one to two weeks after the last pigeon chick has fledged and left nearby nesting grounds. We recommend the Trust contact the USFWS Florida Keys Refuge Complex before any planned construction in order to determine nesting/fledgling status. Construction activities and disturbance conducted during the breeding season could potentially result in a lack of foraging opportunity and potential take due to nest failure under the MBTA and/or under the FWC listed species regulation.

4. To offer more protection for the pigeon, operation of the zip line would also not occur during the breeding season timeframe, May through early September.

5. Optimally, if the project is considered for approval, construction and operation of the zip line would not occur from the onset of the breeding season to when the pigeons migrate for the winter. This would extend the time of no operation from May through mid-to-late October in order to allow the pigeons to forage and store enough energy for their long migratory flight.

6. If considered for approval and once the zip line is established, a second intensive multi-year study should be performed post-construction and during operation in order to determine effects to the white-crowned pigeon.

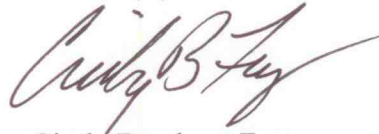
7. In addition, if approved and the zip line is established, a mortality monitoring protocol should be implemented to observe and record each day whether any dead or injured white-crowned pigeons are found near the zip line cable or associated structures (towers, platforms, etc). Any injury or mortality should immediately be reported to the USFWS and FWC.

7. In addition, if approved and the zip line is established, a mortality monitoring protocol should be implemented to observe and record each day whether any dead or injured white-crowned pigeons are found near the zip line cable or associated structures (towers, platforms, etc). Any injury or mortality should immediately be reported to the USFWS and FWC.

As indicated above, we agree with the Trust that the tropical hardwood hammocks are rare, unique, and rapidly disappearing due to development. In addition, we support and applaud the continued protection of Crane Point Hammock and other hardwood hammocks within the Keys by the Trust and other entities. However, these areas and the important species therein should also be protected from other potential human-related pressures, disturbance, and mortality such as those described above related to habitat changes, habitat removal, and human presence and activities.

We appreciate your contacting our office for comments and recommendations on this proposal for Crane Point Hammock and its potential impact on the white-crowned pigeon, particularly as it relates to the MBTA. If you have any questions regarding the comments contained in this letter, please feel free to contact me by telephone at 850-539-1684, or by email at cindy_fury@fws.gov.

Sincerely yours,



Cindy Brashear Fury

Leader

Florida Caribbean Migratory Bird Field Office
U.S. Fish and Wildlife Service

Attachment:

Maps of White-Crowned Pigeon Nesting Proximity to Crane Point Hammock

cc: electronic only with attachments

Department of Economic Opportunity, Areas of Critical State Concern (Rebecca Jetton)

Crane Point Hammock (Chuck Olson, Loretta Geotis)

City of Marathon (George Garrett, Kevin Sullivan)

Marathon City Council (Dick Ramsay, Chris Bull, Richard Keating, Mark Senmartin, Ginger Snead)

Terramar Environmental Services, Inc (Phil Frank)

Florida Fish and Wildlife Conservation Commission (Thomas Eason, Scott Sanders, Brad Gruver)

USFWS, Florida Keys National Wildlife Refuge Complex (Nancy Finley)

USFWS, Ecological Services (Larry Williams, Victoria Foster)

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Migratory Bird Management; Arlington, Virginia. Available at:
<http://www.fws.gov/migratorybirds/NewsPublicationsReports.html>

ATTACHMENT

From: Wilmers, T. Flight-line counts of nesting white-crowned pigeons (*Patagioenas leucocephala*) and the impact of hurricanes in the Florida Keys National Wildlife Refuges, 2000-2011. Comprehensive final report to USFWS for 12 years of breeding-population surveys in the Lower Florida Keys. [These maps are from a Powerpoint presentation based on the report.]

The greatest number of white-crowned pigeon nests in the Florida Keys National Wildlife Refuge Complex in recent years has been in the eastern portion of Great White Heron NWR, and particularly at East Bahia Honda Key. The nearest foraging opportunities for nesting birds that depart these islands in an east to southeasterly direction are: Crane Point Hammock (10.1 miles); Marathon Airport Hammock (11.2 miles); and Curry Hammock on the Gulf side (14 miles). The reduction of the extent and number of tropical hardwood hammocks, and thus a reduction in pigeon foraging opportunities, throughout the Florida Keys is well documented. Therefore, protecting this habitat type is critical to the success of the white-crowned pigeon.

