PBR HAWAII
& ASSOCIATES, INC.

May 31, 2012

Lee Altenberg
2605 Lioholo Place
Kihei, Hawai'i 96753-7118

SUBJECT: HONUA'ULA DRAFT ENVIRONMENTAL IMPACT STATEMENT AND PROJECT DISTRICT PHASE II APPLICATION

Dear Mr. Altenberg:

Thank you for your letter dated June 30, 2010 regarding the Honua'ula Draft Environmental Impact Statement (EIS) and Project District Phase II application. As the planning consultant for the landowner, Honua'ula Partners, LLC, we are responding to your comments. SWCA Environmental Consultants contributed to the responses in this letter. The organization of this letter follows the general headings of your letter.

SUMMARY

Comment: *The proposed project represents the largest deliberate destruction of lowland Hawaiian dry forest ecosystem to occur on Maui in decades. Lowland Hawaiian dry forest ecosystem is among the twenty most endangered ecosystems in the United States. The DEIS compares this remnant with other remnants to denigrate its conservation value, and justify the proposed destruction of some 72% of the remnant, and severe fragmentation of another 14%. But it is silent on the importance of large, unfragmented habitat for conservation of biodiversity, and the fact that the project contains about the fourth largest of eight remaining large contiguous remnants of lowland dry forest on Maui. Moreover, the remnant is some 4 miles from Pu`u O Kali, which contains a number of listed endangered plant species, and it is likely that it could serve as critical habitat in their recovery. All of these eight remnants of this endangered ecosystem should be preserved and dedicated to restoration efforts.*

Response: The purpose of Honua'ula is not to deliberately destroy a lowland Hawaiian dry forest ecosystem. To protect and enhance native plants on the property Honua'ula Partners, LLC will establish a perpetual on-site conservation easement (Native Plant Preservation Area) over an area of approximately 40 acres within the kiawe-wiliwili shrubland south of latitude 20°40'15.00"N. This preserve will contain a high density of native plants within a single, 40-acre, contiguous area. The loss of the remaining approximately 130 acres of kiawe-wiliwili shrubland, which is surrounded by a matrix of highly degraded kiawe-buffelgrass grassland and bordered on two sides by golf courses, will be offset with protection and restoration of approximately 364 acres of near-contiguous threatened dryland ecosystems at Kanaio and Auwahi, in addition to the 40 acre on-site preserve. These off-site areas are immediately adjacent to additional protected areas, and together offer protection and recovery benefit to a very large area, including some of the most highly valued remnants of native dryland ecosystems. Together, the perpetual on- and off-site mitigation areas are expected to result in a net benefit for the endangered Blackburn's sphinx moth by enhancing the number and diversity of known native host plants on currently unprotected lands.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
tel: (808) 521-5631
fax: (808) 523-1402
e-mail: sysadmin@pbrhawaii.com

KAPOLEI OFFICE
1001 Kamokila Boulevard
Kapolei Building, Suite 315
Kapolei, Hawai'i 96707-2005
tel: (808) 521-5631
fax: (808) 535-3163

Comment: *Lowland Hawaiian dry forest is an endangered ecosystem. Government and private actions have allowed this ecosystem to be reduced to amounts and states of degradation that threaten its long-term existence. No more than 5% of the original habitat survives in any degree, and that 5% is heavily invaded by alien plant and animal species.*

Response: The proposed on- and off-site measures to protect native plants and Blackburn's sphinx moth habitat proposed by Honua'ula Partners, LLC provide a net conservation benefit through: a) the protection and propagation of additional native host plants for both larval and adult Blackburn's sphinx moth (including the native host species 'aiea (*Nothocestrum spp.*) and halapepe (*Pleomele spp.*)); and b) creation and protection of a higher number species of native host plants than currently exists on the Property. The proposed on- and off-site mitigation areas together provide approximately 394 acres of native dry shrublands for the perpetual protection and propagation of native dryland plants, including wiliwili. Through the perpetual protection and enhancement of these areas, a stable core habitat area will be secured for the moth, providing net benefit to this covered species, as well as a large number of additional native dryland species.

Comment: *The additional deliberate destruction of remnant habitat of this ecosystem, which is proposed by Honua`ula Partners, should be prohibited by local, state, and federal policy; private interests that propose such destruction should face universal social approbation.*

Response: Local, state, and federal regulatory agencies have been consulted through numerous extensive legal land use processes involving public meetings and government agency reviews since the 1980's. An EIS was published in 1988 to address the first proposed development of this 670-acre property, and no significant botanical or wildlife resources were identified within the Property by consultants or government regulatory agencies at that time. State Division of Forestry and Wildlife (DOFAW) recommendations were limited to fencing and removal of ungulates. In 1992, a Community Plan Amendment was approved, establishing the 670 acre property as Project District 9 in the Kihei/Makena Community Plan. Also in 1992, Project District zoning approval was received for the entire project area, designating over 400 acres for two golf courses and accessory uses. Updated botanical and wildlife surveys at that time revealed no new findings. In 1994, the State Land Use Commission issued its Decision and Order to reclassify the entire 670-acre property from the State Agricultural District to the State Urban District. In 2004, updated botanical and wildlife surveys were conducted with no new findings. The first mention of the area as a remnant native dry shrubland ecosystem appeared in SWCA's 2006 survey reports.

Honua'ula Partners, LLC will comply with all applicable local, state, and federal laws and regulations. The incidental take of approximately 130 acres of kiawe-wiliwili shrubland habitat for endangered Blackburn's sphinx moths will be mitigated in accordance with County of Maui Ordinance No. 3554 Condition 27, Section 10(a)(1)(B) of the federal Endangered Species Act (ESA) of 1973, as amended, and Chapter 195D, Hawai'i Revised Statutes (HRS).

Comment: *Some 160 acres of lowland dry forest survive in the Wailea 670 project area, nicely demarcated by the Historic Wall that runs mauka to makai bordering the HKEA (Bergmanis et al. 2000) `a`a flow. Any destruction of portions of this 160 acres is the opposite of what should be happening---these 160 acres should be managed for restoration.*

Response: The area south of the historic stone wall within the Property totals 170 acres. The maximum area south of latitude 20º40'15.00"N called for in County of Maui Ordinance No. 3554

Condition 27 is 130 acres. Honua'ula Partners, LLC maintain that protection of this entire area is infeasible. Honua'ula Partners, LLC have therefore proposed means to avoid and minimize disturbance to the largest contiguous area possible within the overall design limitations, and to mitigate the unavoidable loss of habitat through perpetual preservation and enhancement of currently unprotected and physically similar habitats off-site. These actions will result in an increase in the number and diversity of native dry forest plants and host plants for the endangered Blackburn's sphinx moth, leading to a net benefit for the species in accordance with the requirements of Chapter 195D Hawaii Revised Statues.

Comment: *The current proposal of the Honua`ula Partners reflects its history. It represents probably about as much conservation as one could squeeze into the site plan developed before 2003. But this level of conservation is still catastrophic to the habitat --- a reduction of c. 160 acres of remnant lowland dry forest to 22 contiguous acres under conservation easement, and 23 acres of mostly linear fragments of ungraded land bordering the golf course greens. The plan violates the two most important features of reserve design:*

- *A large reserve will hold more species than a small reserve because of the species-area relationships described in Chapter 8.*
- *A single large reserve is preferable to several small reserves of equal total area, assuming they all represent the same ecosystem type.*

Response: Since June of 2010 Honua'ula Partners, LLC has met with the State Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) and the U.S. Fish and Wildlife Service (USFWS) on many occasions to reach agreement regarding satisfaction of County of Maui Ordinance No. 3554 Condition 27, which requires the establishment of a Native Plant Preservation Area that "shall not be less than 18 acres and shall not exceed 130 acres" on "the portion of the [Honua'ula] property south of latitude 20°40'15.00"N." The area of Property south of latitude 20°40'15.00"N. comprises an approximately 170-acre 'a'ā lava flow characterized as kiawe-wiliwili shrubland.

As a result of the meetings with DLNR and USFWS, Honua'ula Partners, LLC proposes both on- and off-site measures to protect and enhance native plants and habitat for the Blackburn's sphinx moth.

For on-site measures Honua'ula Partners, LLC will increase the area of the Native Plant Preservation Area on the Honua'ula property from 22 to 40 acres. This 40-acre area contains the highest density of native plants within the Property, and will include all five 'āwikiwiki plants that were alive in 2009 and the majority of the nehe plants at the Property. The Native Plant Preservation Area will be actively managed in accordance with the Conservation and Stewardship Plan (included as Appendix F of the Draft EIS). Management actions will include removal and exclusion of ungulates (deer, cattle, goats, and pigs), removal and control of noxious invasive weeds and plants, and propagation of native plants from seeds collected on the Property.

For off-site mitigation, Honua'ula Partners, LLC will:

1. Acquire a perpetual conservation easement of approximately 224-acres on a currently unprotected portion of property owned by Ulupalakua Ranch adjacent to the eastern boundary of the State of Hawaii Kanaio Natural Area Reserve; and

2. Fund and implement the continuation and expansion of restoration efforts within the Auwahi Forest Restoration Project area, just north of the Kanaio Natural Area Reserve, including fencing of approximately 130 acres, ungulate removal, and plant restoration activities.

The Kanaio and Auwahi areas have been pinpointed by USFWS, USGS, Medeiros, Loope, and Chimera (1993), VanGelder and Conant (1998), Price et al (2007), and The Nature Conservancy to be of high value for Blackburn's sphinx moth habitat and native dryland forest and shrubland species including wiliwili and a number of threatened and endangered species.

Together the on- and off-site mitigation areas provide approximately 394 acres of native dry shrublands for the perpetual protection and propagation of native dryland plants, including wiliwili. Through the perpetual protection and enhancement of these areas, a stable core habitat area will be secured for the Blackburn's sphinx moth, providing net benefit to this species, as well as a large number of additional native dryland species. To implement the on- and off-site mitigation measures, Honua'ula Partners, LLC, will finalize its draft Habitat Conservation Plan (HCP) in collaboration with the USFWS and State DLNR in accordance with Section 10(a)(1)(B) of the Endangered Species Act and Chapter 195D, HRS. The on- and off-site mitigation areas are subject to the approval of the HCP by USFWS and DLNR.

To include the relevant information above in the Final EIS, in the Final EIS Section 3.6 (Botanical Resources) and Section 3.7 (Wildlife Resources) will be revised as shown on the attachments titled "Botanical Resources" and "Wildlife Resources."

Comment: *Conservationists prefer large reserves to small reserves for two main reasons. First, large reserves will, on average, contain a wider range of environmental conditions and thus more species than small reserves. Additionally, some species will be absent from small reserves ... simply because they live at low densities and by chance alone are unlikely to be in a small reserve (e.g. many rare plants). ...*

Response: We acknowledge your comments.

Comment: *Second, large reserves are more secure and easier to manage (at least per unit area) than small reserves for three reasons: (1) large reserves have relatively large populations that are less likely to become extinct (recall Chapter 7); (2) large reserves have a relatively shorter edge than small reserves and thus are less susceptible to external disturbances such as invasions of exotic species and poachers...; and (3) large reserves are less vulnerable to a catastrophic event... — Hunter and Gibbs, p. 235*

Response: We acknowledge your comments.

Comment: *So, the proposal represents at least complete destruction of 72% of the habitat, and severe degradation through fragmentation of another 14%, leaving only 14% that is getting the treatment that 100% of this habitat should be receiving due to the endangered state of this ecosystem.*

Response: As mentioned above, Honua'ula Partners, LLC will establish a perpetual on-site conservation easement (Native Plant Preservation Area) over an area of approximately 40 acres within the kiawe-wiliwili shrubland south of latitude 20°40'15.00"N, loss of the remaining approximately 130 acres of kiawe-wiliwili shrubland, which USFWS considers Blackburn's sphinx moth habitat, will be mitigated in accordance with Section 10(a)(1)(B) of the federal Endangered

Species Act (ESA) of 1973, as amended, and Chapter 195D, HRS. The status of the kiawe-wiliwili shrubland ecosystem has not been evaluated, and aside from the Blackburn's sphinx moth, no threatened or endangered species will be impacted by Honua'ula.

Comment: *In case it is not obvious why remnant habitat of endangered ecosystems should not be deliberately destroyed, here are some specific reasons:*

1. *Habitat loss means alteration of the physical environment or destruction of the established organisms to an extent that natural reproduction of the organisms cannot reestablish their community. This is what has happened to at least 95% of lowland dry forest in Hawaii and on Maui in particular.*
2. *The plan of Honula`ula Partners destroys the ability of the native species to live and reproduce on 72% of the remnant habitat, and imperils their ability to sustained long term survival on the remaining 28% of the habitat by reducing its contiguous area and by reducing the total populations of all organisms.*
3. *`A`a habitat consists of microsites of soil scattered among clinker lava. Dispersed seeds have to fall upon a habitable microsite before the parent plant dies. This makes it a metapopulation, which survives through extinction and recolonization dynamics. The fewer the total number of microsites, the greater the probability of local extinction, and the faster the time to extinction (Bascompte, Possingham, and Roughgarden, 2002;*
4. *No amount of cultivation of native plants is a substitute for ecosystem preservation. First, cultivation is human intervention to sustain plants that would die without this intervention. Plants have survived and evolved for thousands of years without human intervention in their native habitat. No one can propose that cultivation of the native plants will be guaranteed for thousands of years into the future. Second, landscaping with native plants does not bring along all of the other species with which they form an ecosystem --- soil microbes, pollinators, the invertebrate ecosystem, and other plant species. Third, cultivation causes allele extinction and adaptation of species to the conditions of cultivation, making the resulting plants unable to resume life even in intact habitat.*

   The maintenance of genetic variation under cultivation is a complex management problem and one of the main difficulties of such ex situ plant conservation. Furthermore, ex situ plant conservation---the only use of cultivation for conservation---is premised upon the idea that cultivation is a temporary measure awaiting the time when the habitat of the plants is ready for their reintroduction. This is the strategy being pursued for Hibiscus brackenridgei at the Maui Nui Botanical Garden, for reintroduction to their site of origin, Pu`u O Kali. Ex situ conservation is never designed as a way to justify the destruction of the habitat of origin.
5. *The proposed reduction of population sizes of all native through habitat destruction increases the chance that the remaining population falls below the minimum viable population size (Hanski, Moilanen, and Gyllenberg, 1996), where stochastic processes and genetic mutational meltdown (Higgins and Lynch, 2001) cause the eventual local extinction of the species:*

   > *Theory suggests that the risk of extinction by mutation accumulation can be comparable to that by environmental stochasticity for an isolated population smaller than a few thousand individuals. Here we show that metapopulation structure, habitat loss or fragmentation, and environmental stochasticity can be expected to greatly accelerate the accumulation of mildly deleterious mutations, lowering the ge- netic effective size to such a degree that even large metapopulations may be at risk of extinction. Because of mutation accumulation, viable metapopulations may need to be far larger and better connected than would be required under just stochastic demography.*

   It is the potential of large contiguous areas of habitat to support large metapopulations that makes the HKEA remnant lowland dry forest habitat especially valuable for conservation, and which the proposed plan destroys.

Response: Most of the native plants observed during SWCA's survey of the Property are found elsewhere throughout Maui and the main Hawaiian Islands. Until recently there have been no efforts to protect and conserve the Property, and considering its land use designations (State Urban District, County of Maui Project District 9), it is unlikely that in the absence of Honua'ula, the area will be protected. Thus without Honua'ula, the value of the existing remnant ecosystem will continue to degrade. The proposed onsite Native Plant Preservation Area encompasses a contiguous 40-acre area within the *kiawe-wiliwili* shrubland to protect the portion of the remnant native lowland dry shrubland plant community with the highest densities of selected endemic/native plants having high conservation priority.

The proposed size and location of the Native Plant Preservation Area are based, in part, upon a vegetation density analysis employed by SWCA to aid in defining areas where preservation could be most effective. The size and location of the Native Plant Preservation Area are also based upon scientific research that suggests even small restoration efforts consisting of a few hectares can help provide habitat for native species and can subsequently serve as urgently-needed sources of propagules (Cabin et al. 2000b, Cabin, et al. 2002a). This is reinforced by numerous sources of information on successful propagation of native plants specifically for landscaping (e.g., TNC 1997, Tamimi 1999, Friday 2000, Wong 2003, Bornhorst and Rauch 2003, Lilleeng-Rosenberger and Chapin 2005, CTAHR 2006). The research shows that even small preserves consisting of individual trees are being deemed as appropriate and feasible by USFWS and DLNR when managed in combination with regional preserve areas, such as at La'i'opua on Hawai'i Island (Leonard Bisel Associates, LLC and Geometrician Associates 2008.). The purpose of any ex-situ native plant propagation is to enhance the native plant community on-site through outplanting, not to provide an ex-situ population.

As noted in Section 3.6 (Botanical Resources), to further protect native species on-site, Honua'ula Partners, LLC will:

- Conserve as many of the *wiliwili* trees as possible outside the Native Plant Preservation Area;
- Fence the entire perimeter of the Property, and other areas as appropriate, to exclude feral ungulates from the *kiawe-wiliwili* shrubland. A fence has already been erected, however fencing requirements will be reviewed and updated (for example, to include stronger deer fencing) as establishment of the Native Plant Preservation Area and site construction begins (this is consistent with County of Maui Ordinance No. 3554 Condition 7);
- Implement an ungulate management plan to ensure that goats, deer, pigs, and stray cattle are removed in a humane manner from the Native Plant Preservation Area and the Native Plant Conservation Areas (this is consistent with County of Maui Ordinance No. 3554 Condition 7);
- Employ a Natural Resources Manager to help develop and implement specific conservation programs to ensure the protection of native plants and animals;
- Implement a program to control and eradicate invasive grasses, weeds, and other non-native plants from the Native Plant Preservation Area with the exception of the non-native tree tobacco (*Nicotiana glauca*), which is a recognized host plant for the endangered Blackburn's sphinx moth (*Manduca blackburni*);

- Implement a native plant propagation program for landscaping with plants and seeds naturally occurring on the Property. All plants native to the geographic area will be considered as potential species for use in landscaping;
- Implement a seed predator control program to control rats, mice, and other seed predators;
- Implement a fire control program to help protect the Native Plant Preservation Area and other areas and ensure the success of plant propagation and conservation efforts;
- Implement an education and outreach program open to the public and sponsor service groups to assist with implementation of native plant management programs;
- Apply for additional program support offered by the State of Hawai'i (Natural Area Partnership Program and Hawaii Forest Stewardship Program) and USFWS to promote sound management of the natural resources within Honua'ula;
- Continue long-term vegetation monitoring during wet and dry seasons to evaluate the health of native plants and to support the development of the Conservation and Stewardship Plan for the Native Plant Preservation Area and native plant restoration efforts; and
- Finalize its draft Habitat Conservation Plan (to include the candidate endangered *'āwikiwiki*) in collaboration with USFWS and DLNR in accordance with Section 10(a)(1)(B) of the Endangered Species Act and Chapter 195D, HRS.

As noted above, Honua'ula Partners, LLC also proposes off-site measures to protect and enhance native plants and habitat for the Blackburn's sphinx moth. Together the on- and off-site mitigation areas provide approximately 394 acres of native dry shrublands for the perpetual protection and propagation of native dryland plants, including wiliwili.

Comment: *The pre-2003 site plan should be jettisoned, and a new site plan developed that protects all of the `a`a habitat south of the Historic Wall. Such a site plan would have to increase the density of the 76% of the property without native biota by 30% to include all of the currently planned units and features. If the conservation area is kept to the 130 acres mandated by the Unilateral Agreement should DLRN and USFWS find it merits preservation, the revised site plan would be able to develop 81% of the 670 acres, and could maintain all the planned items by a 24% increase in density. Such increased density is a high priority among the "Smart Growth" principles advocated by Honua`ula Partners.*

Response: Restricting all development south of the historic wall and thus increasing density in the northern part of the property would result in significant changes to the Conceptual Master Plan, resulting in conflicts with several provisions of Chapter 19.90A, Maui County Code (MCC). A Native Plant Preservation Area of 130 acres would necessitate shifting a significant number of single-family and multi-family homes to the northern section of the Property, thereby increasing density in this area. It would also significantly change the golf course layout or possibly make a golf course altogether infeasible. Simply reducing the number of homes or not providing a golf course could make Honua'ula economically unfeasible in light of the significant on and off-site improvements required as conditions of County of Maui Ordinance No. 3554. Reducing the number of homes and/or not providing a golf course would also dramatically decrease the economic benefits of Honua'ula, such as property tax revenues to the County, total gross tax revenues to the State; and impact fees paid to the County and State by Honua'ula Partners LLC.

To provide an alternative discussing a 130-acre Native Plant Preservation Area, which includes and elaborates on, the above information in the Final EIS, in the Final EIS Chapter 6 (Alternatives) will be revised to include the information shown on the attachment labeled "Alternatives."

Comment: *SWCA Environmental Consultants (SWCA) appears to be aware of this situation, but faces the dilemma of providing a product that is satisfactory to their client, Honua`ula Partners. The resulting product reflects the limits of how true to conservation biology a hired consultant can remain within their contractual relationship.*

SWCA's botanical survey of the property is unparalleled in its conception, execution, and exposition. It sets a new high bar on what should be expected from an EIS. Moreover, the data in their study provides an invaluable baseline from which to monitor the effects of habitat protection and restoration for the habitat in coming decades --- should the habitat survive intact from the current plans of its client, Honua`ula Partners.

Response: We acknowledge that SWCA Environmental Consultants has done excellent work at Honua'ula. SWCA's role is as a professional environmental consultant. As such their function is to perform the work required within the regulatory context of the project, following both guidelines and laws established by regulatory agencies.

Comment: *But the attempts in SWCA's report to justify their client's development proposal are unfortunate. They resort to several rhetorical tactics:*

1. *Denigrating the conservation value of the habitat remnant on `a`a flow HKEA;*
2. *Exaggerating the conservation value of their mitigation efforts --- namely, counting the acreage of ungraded, unprotected fragments of land, and counting the acreage of landscaping where native plants are proposed to be used;*
3. *Using the fact that other Hawaiian dry forest are receiving conservation efforts as justification for destruction of the habitat on HKEA.*
4. *Using the fact that a few other remnants of lowland dry forest have higher remaining plant biodiversity than HKEA to justify the destruction of habitat on HKEA.*
5. *Using the fact that other reserves have been forced to work with small acreages as justification for destroying the large acreage of habitat on HKEA.*

Response: We acknowledge your comments but respectfully disagree that SWCA Environmental Consultants has resorted to "rhetorical tactics" such as denigrating the conservation value of the kiawe-wiliwili shrubland and exaggerating the conservation value of recommended mitigation efforts.

In response to your comment regarding "counting the acreage of ungraded, unprotected fragments of land, and counting the acreage of landscaping where native plants are proposed to be used," as a result of meetings with DLNR and USFWS, original approaches to protect native plants and wildlife habitat discussed in the Draft EIS have evolved to address concerns expressed. While Honua'ula Partners, LLC is still providing significant on-site areas to protect native plants and wildlife habitat, Honua'ula Partners, LLC in now also proposing a far more ambitious plan with significant off-site measures. The proposed on- and off-site measures provide a net conservation benefit through the quality and quantity of the area that will be protected. Compared to providing only an on-site Native Plant Preservation Area of a maximum 130 acres, the on- and off-site mitigation areas provide up to 394 acres for protection for dryland forest species, including wiliwili and a greater diversity native host plants for the Blackburn's sphinx moth. Through the perpetual protection and enhancement of these areas, a stable core habitat area will be secured

for the Blackburn's sphinx moth, providing net benefit to this species, as well as a large number of additional native dryland species.

To include the relevant information above in the Final EIS, in the Final EIS Section 3.6 (Botanical Resources) and Section 3.7 (Wildlife Resources) will be revised as shown on the attachments titled: "Botanical Resources" and "Wildlife Resources."

Comments by Section

Comment: *The Botanical Survey gives an excellent review, and I have no criticisms, until p. 4, where it cites my report incorrectly:*

> *Recently, Altenberg (2007) drew attention to the southern portion of the Property which he claimed to be among the best examples of a remnant native lowland dry forest remaining on Maui. ... Altenberg (2007) identified eight wiliwili (E. sandwicensis) forests in southeast Maui including Kanaio, Pu`u o Kali, Honua`ula / Wailea 670, Makena, La Perouse, Kaupo, Lualailua, and Waikapu.*

Nowhere did I claim it "among the best examples"; the word "best" was used only once---to refer to the best data available on the extent of remnant wiliwili habitat on Maui, the maps of Jonathan Price. It is Price's map, not I, that show eight remaining large contiguous ares of wiliwili habitat, among which Wailea 670 can be seen to be around the fourth largest among these 8. Hence, the large contiguous wiliwili habitat in Wailea 670 is not "among the best examples", but among the only examples of large, contiguous lowland dry forest left on Maui.

Response: We apologize that your report was cited incorrectly; however, with the exception of incorrectly stating that you claimed that southern portion of the Property to be among the best examples of a remnant native lowland dry forest remaining on Maui, we note that the other statements in the botanical survey report regarding your report are accurate.

It should be noted that regarding the map by John Price you reference here and in your report, John Price notes that the map shows areas of extent, rather than areas of occupancy, with the purpose of identifying areas in which people may be able to collect wiliwili seeds. The areas shown on the map are meant to depict areas where scattered individuals may exist, rather than contiguous areas of wiliwili, as you assert in your letter. Since this map does not take into consideration any parameter other than presence of wiliwili, it is a very limited tool to indicate the value of the area for the species.

Comment: *The rhetorical denigration of the remnant continues on p. 5:*

> *Hence, the southern portion of the Property may be described more accurately as a highly disturbed, remnant native coastal dry shrubland (sensu Gagne and Cuddihy 1999) in which wiliwili (Erythrina sandwicensis) has become a common inhabitant. Medeiros (USGS, pers. comm.) suggested that mature wiliwili (Erythrina sandwicensis) trees may be found throughout southeastern Maui, often in abundance and greater densities than those encountered in the Property.*
>
> *...Price et al. (2007) recently developed methods using bioclimatic data to map habitat quality for and range of two widespread plant species including wiliwili (Erythrina sandwicensis) and two rare plant species throughout the Hawaiian Islands. The area*

> *encompassed by the Property appears on these maps as `medium' to `low' habitat quality for wiliwili (E. sandwicensis) (Price et al. 2007). However, numerous areas in southeastern Maui located between Pu`u Ola`i and Kaupo outside the Property did appear as having `high' habitat characteristics on the maps prepared by Price et al (2007).*

Response: We fail to see how citing the conclusions of previous research constitute "rhetorical denigration of the remnant."

Comment: *So, here perhaps see why SWCA misquoted me as saying HKEA was among the "best" examples, so that they could discredit me by showing "other, better examples" exist. But here is what Price and colleagues have to say about the overall situation of Hawaiian dry forest:*

> *Hawaiian dry forests were once considered to be the most diverse forest ecosystem on the Hawaiian Islands (Rock 1913), however, today they are extremely deforested and degraded. Our results show that forty-five percent of Hawaiian dry forest taxa are at risk of endangerment and that patterns of endangerment in Hawaiian dry forests are unique compared to other Hawaiian forest types. ... There is currently no data on the number of tropical dry forest fragments remaining on the Hawaiian Islands and no species lists for these fragments. Future research should begin by identifying the remaining extent and distribution of Hawaiian dry forest fragments because they are clearly endangered. The effects of habitat destruction, fragmentation, and the breakdown of native ecosystem functions play a large role in determining patterns of diversity that cannot be fully explained by island age and area. Examining patterns of species richness, composition, and structure among these remaining forest fragments would produce valuable information for understanding patterns of diversity in an increasingly endangered forest type. (Pau, Gillespie and Price, 2009)*

Response: Again we apologize that your report was cited incorrectly; this was not done with the intent to discredit your work.

Comment: *Now, once the text moves into the actual botanical survey, Sections 2 and 3 (pp. 5-17), we find quite excellent work and reporting. The areas of wiliwili habitat shown in Price's map find confirmation in SWCA's aerial reconnaissance:*

> *Our aerial reconnaissance confirmed input from others (A.C. Medeiros, USGS, pers. comm.; Altenberg 2007) suggesting that several additional high density wiliwili (E. sandwicensis) groves may be found near Pu`u Olai, Kanaio, Pu`u O Kali, Makena (Figure 12), La Perouse, Kaupo, and Lualailua. (p. 17, 3.5 Aerial Reconnaissance Survey)*

Response: We appreciate your acknowledgement of SWCA's work.

Comment: *However, in the Discussion, Section 4, the rhetoric returns.*

> *Similarly, there have been no previous efforts by any Federal, State, local government agency, or conservation Non-governmental organizations (NGOs) to acquire and protect any portion of the Property.*

Very few have the resources "to acquire and protect" property. The most recent actions putting dry forest into conservation were made by current owners, not by acquisition. The Erdmans put thousands of acres in to conservation easement, and Hawaiian Homelands put c. 250 acres of Pu`u O Kali into conservation. In contrast, Honua`ula Partners propose to put only 22 acres into conservation easement. And while not having the resources to acquire, several NGOs have put efforts into protecting the habitat at Wailea 670, including

the Native Hawaiian Plant Society, Maui Tomorrow, the Sierra Club, and Maui Cultural Lands, and many others without resources to acquire have submitted testimony in favor of complete preservation.

Response: In context, the statement that you quote above from the botanical survey report is as follows:

> *The Property was viewed by Char and Linney (1988) and Char (1993, 2004) as having unremarkable vegetation. Until SWCA (2006) and Altenberg (2007), there had been no recognition of the remnant mixed kiawe-wiliwili shrubland as an area worthy of special recognition. Similarly, there have been no previous efforts by any Federal, State, local government agency, or conservation Non-governmental organizations (NGOs) to acquire and protect any portion of the Property.*

We maintain that is accurate to say that there have been no previous efforts by any Federal, State, local government agency, or conservation Non-governmental organizations (NGOs) to acquire and protect any portion of the Property. However we do recognize that since the mid-00's you and others have made efforts to bring attention to the conversation value of the kiawe-wiliwili shrubland south of the historic wall.

To reflect this change in the Final EIS, in the Final EIS Section 3.6 (Botanical Resources) will be revised as follows:

> None of the surveys identified any Federal or State of Hawai'i listed threatened or endangered plant species on the Property. However, five individual plants of the candidate endangered species, *'āwikiwiki* (*Canavalia pubescens*), have been documented by SWCA (2010a) within the Property. The Property is not located within or immediately adjacent to critical habitat or recovery management units designated by the U.S. Fish and Wildlife Service (USFWS). ~~There~~ Until recently there have been no efforts by any Federal, State, or local government agency, or non-governmental conservation organizations to acquire ~~and~~ or protect any portion of the Honua'ula Property.

Comment:

> *The remnant native vegetation in the remnant mixed kiawe-wiliwili shrubland represents a highly degraded lowland dry shrubland in which wiliwili trees (E. sandwicensis) are a natural component. High density wiliwili (E. sandwicensis) stands occur in other locations throughout the region. Altenberg (2007) identified eight areas in southeast Maui, including the Property, where wiliwili (E. sandwicensis) groves are found. In this study, we also found dense wiliwili (E. sandwicensis) groves east of Pu`u Olai.*
>
> *Far from being pristine, this dry shrubland has been degraded by human activities including unrestricted grazing by ungulates, cattle grazing, invasive plant species, road works, kiawe (P. pallida) logging, and military activities. Only 26 of the 146 species reported from the parcel are native, 14 of these are endemic, and 120 are introduced non-native species (Figure 6).*

More denigrating language, and language intended to make it seem like the ecosystem represented here is common. No comparison is given between the species list at HKEA and at Pu`u O Kali. A 2004 list of species at Pu`u O Kali (Forest Starr) shows 35 native species, compared to 26 found by SWCA at HKEA. So, while

describing Pu'u O Kali thus: "Pu`u O Kali Forest Reserve is a remnant wiliwili (E. sandwicensis) forest on the slopes of east Maui above Khei. It is among the most diverse and intact lowland dry forests on Maui which also supports endangered flora." (p. 23) it describes HKEA as "highly degraded lowland dry shrubland" even though it as 72% of the native plant biodiversity of Pu`u O Kali.

The comparisons with the very best surviving dry forest remnants in Hawaii are clearly intended to justify the destruction and degradation of most of the HKEA remnant, and its removal from among the 8 large contiguous lowland dry forest areas that survive on Maui. But that is a fallacious line of reasoning. The fact that a particular Da Vinci painting may not be as well preserved as others does not justify its destruction. The fact that three grandparents may be healthier than one does not justify denying that one the best chance at longevity. Lowland Hawaiian dry forest is an endangered ecosystem, and all surviving remnants of that ecosystem deserve maximal preservation and restoration.

Response: In context, the statement that you quote above from the botanical survey report is as follows:

> *Pu'u O Kali Forest Reserve is a remnant wiliwili (E. sandwicensis) forest on the slopes of east Maui above Kīhei. It is among the most diverse and intact lowland dry forests on Maui which also supports endangered flora. As Monson (2005) quoted A.C. Medeiros, "Pu'u-O-Kali is the only place on this whole side that looks like it did in ancient times... It's the only place where a Hawaiian from long ago would look around and say, 'Oh, I know where I am.' They wouldn't recognize the rest of South Maui."*

Whereas Pu'u O kali has received protection, until recently there have been no efforts by any Federal, State, or local government agency, or non-governmental conservation organizations to acquire and protect any portion of the Honua'ula Property

Comment: *The DEIS emphasizes numerous times that no currently listed endangered plant species are found on the property. But the purpose of the Endangered Species Act is not discussed:*

> *ENDANGERED SPECIES ACT OF 1973 [Public Law 93-205, Approved Dec. 28, 1973, 87 Stat. 884] [As Amended Through Public Law 107-136, Jan. 24, 2002]*
>
> *(b) PURPOSES. The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section.*
>
> *(5)(A) The term "critical habitat" for a threatened or endangered species meansâ€"*
>
> *(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and*
>
> *(ii)* ***specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.***

Response: We acknowledge that the purpose of the Endangered Species Act (ESA) is not only to protect species that have been listed as threatened or endangered, but also to conserve the ecosystems upon which those species depend. While the primary objective of the ESA is the protection of endangered species, and the "take" of such species is considered unlawful, the ESA is not absolute. In 1982, amendments were made to the 1973 ESA which authorize the Secretary of the Interior and the Secretary of Commerce to allow the take of federally listed species (Endangered Species Act, Section 10a(1)(B)). When non-federal activities that would otherwise be legal have the potential to result in the "take" of a listed species for example, they may be allowed under an Incidental Take Permit, obtained through the USFWS. To mitigate the take of listed species, Section 10 of the ESA requires that parties wishing to obtain an Incidental Take Permit must submit a HCP, with their application.

As provided under the ESA, Honua'ula Partners, LLC has prepared a draft HCP. This HCP will be finalized to provide: 1) measures to offset the potential impact of Honua'ula on two Covered Species (Blackburn's sphinx moth and nēnē); and 2) avoidance and minimization measures expected to avoid any negative impacts on five additional endangered species (the Hawaiian duck, Hawaiian silt, Hawaiian coot, Hawaiian petrel, and Hawaiian Hoary bat), one threatened species (Newell's shearwater), one candidate endangered species ('āwikiwiki), and the Hawaiian short-eared owl (pueo) which is not a listed species on Maui. The HCP will be in support of an Incidental Take Permit (ITP) for Blackburn's sphinx moth and nēnē in accordance with Section 10(a)(1)(B) of the ESA of 1973, as amended, and an Incidental Take License (ITL) in accordance with Chapter 195D, HRS.

In accordance with its HPC Honua'ula Partners, LLC in now also proposing a far more ambitious plan with on- and off-site measures. The proposed on- and off-site measures to protect native plants and Blackburn's sphinx moth habitat proposed by Honua'ula Partners, LLC provide a net conservation benefit (as required under Chapter 195D, HRS) through: a) the protection and propagation of additional native host plants for both larval and adult Blackburn's sphinx moth (including the native host species 'aiea (*Nothocestrum spp.*) and halapepe (*Pleomele spp.*)); and b) creation and protection of a higher number species of native host plants than currently exists on the Property. The proposed on- and off-site mitigation areas together provide approximately 394 acres of native dry shrublands for the perpetual protection and propagation of native dryland plants, including wiliwili. Through the perpetual protection and enhancement of these areas, a stable core habitat area will be secured for the moth, providing net benefit to this covered species, as well as a large number of additional native dryland species.

Comment: *Because the extirpation of species is an ongoing process in lowland dry forest on Maui (having been seen for Hibiscus brackenridgei in Pu`u O Kali in the 1990s, and for Chamaecyse celastroides var. lorifolia on HKEA in 2007), the absence of species from remnants that are present on nearby remnants must be considered to be the result of local extinction, most likely by ungulate grazing. It is likely that the listed endangered species at Pu`u O Kali would recolonize HKEA if reintroduced, so HKEA needs to be considered as critical habitat for their recovery.*

Response: Prolonged drought, in addition to ungulate grazing, must also be recognized as a natural threat to the survival of native dry shrubland plants, as well as wildfire, the intensity and frequency of which are exacerbated by fuel load provided by non-native, drought tolerant grasses, and climate change. It is likely that conservation and stewardship activities proposed for the on- and off-site mitigation areas will need to employ measures to help ensure the recovery of native

plants such as 'awikiwiki, nehe, ilima, and which have all but completely disappeared from Honua'ula in the past two years due in part to the extremely dry conditions. A fire plan will be put in place to avoid further threat from wildfire.

Considering the history and land use designations of the Property (State Urban District, County of Maui Project District 9), it is unlikely that in the absence of Honua'ula, any conservation measures would be implemented to abate the abovementioned threats, and degradation will continue.

Comment: *The wildlife survey does not consider invertebrate species such as native Hawaiian bees, which are under discussion for listing as endangered species. It is completely unknown what impacts the proposed habitat destruction may have on the native bee species. A great deal is unknown about lowland Hawaiian dry forest ecology. The HKEA remnant is a potential study site to learn more, and for this reason, should also be preserved in its entirety.*

Response: In the summer of 2011, Dr. Karl Magnacca of the University of Hawaii at Hilo conducted a study to search for native Hawaiian bees in the genus *Hylaeus* at several locations in Southeast and West Maui including Honua'ula and the proposed mitigation areas. Dr. Magnacca found no native Hawaiian bees in the genus *Hylaeus* within or adjacent to Honua'ula or the proposed off-site mitigation areas.

Thank you for reviewing the Draft EIS. Your letter will be included in the Final EIS.

Sincerely,

PBR HAWAII

Tom Schnell, AICP
Senior Associate

cc: William Spence, Maui Planning Department
Charles Jencks, Honua'ula Partners, LLC

Attachments: Wildlife Resources
Botanical Resources
Alternatives

Literature Cited

Bornhorst, H.L., and F.D. Rauch. 2003. Native Hawaiian plants for landscaping, conservation, and reforestation. ooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, Honolulu.

Cabin, R.J., S. Weller, D. Lorence, T. Flynn, A. Sakai, D. Sandquist, and L. Hadway. 2000a. Effect of long-term ungulate exclusion and recent alien species control on the preservation and restoration of a Hawaiian tropical dry forest. Conservation Biology 14: 439-453.

Cabin, R.J., S. Cordell, D.R. Sandquist, J. Thaxton, and C. Litton. 2000b. Restoration of tropical dry forests in Hawaii: Can scientific research, habitat restoration, and educational outreach happily coexist within a small private preserve? 16th Int'l Conference, Society for Ecological Restoration, August 24-26, Victoria, Canada.

Medeiros, A.C., L.L. Loope, and C. Chimera. 1993. Biological inventory and management recommendations for Kanaio Natural Area Reserve. Report to Hawaii Natural Area Reserve Commission. Haleakala National Park.

Price, J.P., S.M. Gon, J.D. Jacobi, and D. Matsuwaki. 2007. Mapping Plant Species Ranges in the Hawaiian Islands: Developing a Methodology and Associated GIS Layers. Hawai'i Cooperative Studies Unit, University of Hawai'i at Hilo, Tech. Rept. HSCU-008.

Tamimi, L.N. 1999. The use of native Hawaiian plants by landscape architects in Hawaii. M.S. Thesis in Landscape Architecture, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Van Gelder, E., and S. Conant. 1998. Biology and conservation of *Manduca blackburni*. Report to U.S. Fish and Wildlife Service, Honolulu, Hawai'i. 52 pp.

Wong, S.K. 2003. Going native: nurseries that grow native Hawaiian plants for landscaping are helping to rescue some of the world's most endangered flora. Office of Hawaiian Affairs, available at: http://www.oha.org/pdf/kwo04/0403/10.pdf.