

Comments received by the CCBA during the validation audit.

CCB Standards Second Edition

Project: **Boden Creek Ecological Preserve Project**

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**Comment 1**

Date: 12 February, 2010

Sent by: Alan Feest, Water and Environmental Management Research Centre

This is an excellent proposal and should be supported. Of particular merit is the setting up of a biodiversity baseline recording system that generates numerical values for biodiversity of special groups of interest. This is novel in my experience for a tropical reserve. I have produced a computer programme (FUNGIB) that would enable the easy calculation of the indices that are proposed to be used (plus some others) which is freely available if this would be of interest to the team.

**Comment 2**

Date: 9 March, 2010

Sent by: Bruce Miller, Carolyn Miller, Gallon Jug

The project site lies along a critical biological corridor within Belize as recognized in national and regional meetings over the last decade or more. Validation of the project will be important, not only for the surrounding area, but as a model for future carbon off set projects within Belize.

As this project design document may serve as a standard for future projects, it is important to clarify and vet all statements made, as well as carefully describe methodologies that include biodiversity monitoring. In order to have a robust and transparent document linking statement to original sources we have carefully reviewed the document and provided comments, corrections and observations that would improve the final edited version for consideration of validation.

We strongly support validation of this project and assume after final editing this project document will provide guidelines for similar projects in the future. The following comments/corrections are provided in an effort to strengthen the project design document, not detract from it.

General comments:

Pages of text and some tables and other graphics were “cut and pasted” WITHOUT CITATION from previous work done by Miller and Miller 2008. There are many sections of the report with missing citations and incorrect citations. It appears that the author of the biodiversity section did not have adequate experience in Belize to address this section. It appears that the author was also not aware of the level of relevant work previously completed within Belize and lacked familiarity with basic species occurrences for the country. We suggest that future projects include experienced and knowledgeable partners for the area of consideration to avoid such issues in the future.

Specific comments:

p. 16 – “Figure 5: Project Area: Forest vs. Non-Forest Map”.

The legend here and on subsequent maps is not clear and could be misleading for those not familiar with the property. The “Project area” legend shows as “white areas” as the Project Area and “green” as forested areas. There is much “white” indicated for areas outside of the project boundary. Perhaps a transparent background diagonal hatch or something similar could be used for the BCEP area?

p. 21 Equation 2 - asai and pataju includes palm species not found in Belize, calculations using them may not have relevance to Belizean landscapes without a cross reference for similar species.

p. 24 Correction: "BLE also founded an NGO, the Golden Stream Corridor Preserve, that was able to purchase two other parcels (15,038 acres) through fundraising efforts of BLE." Footnote 16 was checked against the online reference and this statement is not supported. Note the NGO was not the “Golden Stream Corridor Preserve” which is a geographic area. The citation does indicate that Fauna and Flora International “FFI immediately transferred the Golden Stream Corridor Preserve (GSCP) to a nascent local conservation group (NGO), the Ya’axché Conservation Trust (YCT).”

p. 24. In the section “G1.7. Current Biodiversity within the Project Zone” the IUCN designations are incorrect. The author had not vetted these and we provide corrected designations below when the tables are addressed.

Correction: “A two-year biodiversity assessment was conducted from 2008 – 2009...” should read “from 2007 – 2009” as field work for the project began in 2007.

Correction: "This assessment focused on monitoring small mammals, medium - large mammals, bats, and birds."

Note this was a baseline data collection project and not a *monitoring effort*.

"Bats were surveyed using Anabat acoustic sampling and physical capture because of the highly reliable nature of the data." This statement erroneously cites the Titley Scientific web site and is not an adequate reference as this does not take into account capture methods. A more robust statement and citation is needed here.

p. 24 and continued on 25 the statement is in error and demonstrates a lack of careful review and due diligence of the conservation status of species by the author of this section. "Two of these mammals, the Least Sac-winged Bat (*Balantiopteryx io*) and the Van Gelder's bat (*Bauerus dubiaquercus*) are listed as endangered by the International Union of Conservation of Nature (IUCN-E), plus three other species are listed as vulnerable (IUCN-Vu), the Baird's tapir (*Tapirus bairdii*), Collared peccary (*Pecari tajacu*), and White-lipped peccary (*Tayassu pecari*)." The IUCN status are misrepresented here and corrected below in table 7.

The next sentence makes no mention of the IUCN status of the spotted cats. "In addition to the above, jaguars (Figure 8: Station #6 Boden Creek Trail, April 3, 3008 03:47h, likely pair with inset photograph captured 30 seconds earlier (Miller and Miller 2008)) and ocelot were documented on the property." The spotted cats were omitted and not listed under mammals as either "Belize concern" (all are) nor with the IUCN current status provided. The spotted cats were a major component of the camera trapping and should be listed in table 7.

p. 25 Corrections are necessary for Table 7.

The correct family is missing on one species as well as the IUCN rankings are incorrect for most species listed. It is imperative that when using internationally recognized designations for conservation status are used that they be accurate. Below the current IUCN conservation status has been added and includes the spotted cats known to occur at the project site.

Table 7: Mammals of special conservation concern documented on the Project site

FAMILY	Common name	Scientific name	T&E
Emballonuridae	Least Sac-winged Bat	Balantiopteryx io	IUCN VU
Mormoopidae	Ghost-faced Bat	Mormoops megalophylla	BZ-concern
	Big Naked-backed Bat	Pteronotus gymnonotus	BZ-concern
Phyllostomidae	Underwood's Long-tongued Bat	Hylonycteris underwoodi	BZ-concern
Vespertilionidae	Van Gelder's bat	Bauerus dubiaquercus	IUCN NT
Cebidae	Yucatán Black Howler Monkey	Alouatta pigra	IUCN E
	Geoffroy's Spider Monkey	Ateles geoffroyi	IUCN E
Tapiridae	Baird's tapir	Tapirus bairdii	IUCN E
Tayassuidae	Collared peccary	Pecari tajacu	IUCN LC
	White-lipped peccary	Tayassu pecari	IUCN NT

Felidae	Ocelot	Leopardus pardalis	IUCN LC
	Margay	Leopardus wiedii	IUCN NT
	Jaguar	Panthera onca	IUCN NT

As a note, the species Dark Long-tongued Bat (*Lichonycteris obscura*, Phyllostomidae) was not verified on the property. That record was the result of an erroneous ID and corrected to *Hylonycteris underwoodi*. This species should be removed from the table.

A review of the current IUCN status for all species can be verified at <http://www.iucnredlist.org/apps/redlist/search>

Bat species warranting conservation consideration in Belize include *Balantiopteryx io*, *Bauerus dubiaquercus* designated by IUCN as vulnerable and near threatened. Additional species of concern for Belize that have been verified to occur at BCEP include *Mormoops megalophylla*, *Pteronotus gymnotus* and *Hylonycteris underwoodi*. The citation Miller 2009 should be used for these.

Table 8: Birds of special conservation concern documented on the Project site. Family names are missing for some species and the genera should be spelled out first time used.

p. 35 G2.5. Baseline Biodiversity: We suggest this can be strengthened by adding something like this:

In addition to species of concern (T&E) all bats occurring on or around the BCEP are providing critical ecosystem services. If there is habitat conversion key pollinators, seed dispersers and insect predators will be lost. This would impact the entire Golden Stream Corridor area. These ecological services are critical for natural forest and habitat regeneration after natural disaster such as Hurricane Iris.

p. 37-38 Figs. 10, 11, 12 have been directly lifted from the Miller & Miller 2008 project report WITHOUT CITATION.

p. 41 "Project property is owned by BCEP in fee simple." What does this mean? This legal terminology for land ownership should be clarified for the reader not familiar with Belize law.

p. 42. "BCEP already trains and employs guides and patrol personnel while actively engaged in biodiversity data collection (Miller and Miller 2008)." While there were periodic patrols of the property, we were not aware of any BCEP personnel engaged in biodiversity data collection during our project.

p. 54, 55, 59, 61, 65 contains text on birds, bats, small mammals, large mammals, tables directly lifted from Miller & Miller 2008 WITHOUT CITATION.

p. 54 Table 17: Birds of special conservation concern documented on the Project site (adapted from Miller and Miller 2008) this is redundant to table 8 and also perpetuates the missing family names noted with table 8 above.

p. 56 Table 18

*Lichonycteris obscura* Dark Long-tongued Bat should be removed as noted above.

*Rhogeessa tumida* Black-winged Little Yellow Bat has been renamed and is now *R. aeneus Yucatan Yellow Bat*, This species was correctly listed in Miller and St. Germain (2009).

P. 59 "A small mammal live-trapping study was conducted from February 28 to March 22, 2008 by B. M. Miller with Rex Medlin and Tom Risch from Arkansas State University." Needs to be referenced to the Miller and Miller (2008) report.

p. 61 has an incorrect species name: see black howler monkeys (*Alouatta caraya*)...

Note the Black Howler Monkey (*Alouatta caraya*) is a South American species distributed from [Argentina](#), [Bolivia](#), [Brazil](#) and [Paraguay](#), being the southernmost member in the [Alouatta genus](#).

The correct name for the regional endemic is the Yucatan Black Howler Monkey *Alouatta pigra*.

p. 63 the incorrect taxa for the monkey is again listed in Table 20: All mammalian species documented during each study on BCEP.

p. 68. We suggest rephrasing “Bats represent 20% of all mammalian species worldwide..” to a more relevant “Bats represent >50% of the terrestrial mammals of Belize.”

p. 68 contains text from Miller and St. Germain 2009 but is not cited here.

p. 69. Sampling Array section.

As this document will serve as a standard for future project design documents it is important to have a distinction between “Surveillance vs. Monitoring.” Suggested text below:

Often, what has been referred to as “monitoring” is actually surveillance, or tracking the change over time. Monitoring differs from surveillance as the goal is to track progress over time towards a target or objective. If there is no clear idea of what this objective is, then there is nothing to monitor. Setting explicit targets lies at the core of effective monitoring. Monitoring towards a target provides data verifying whether management efforts are successful, whereas surveillance alone will not provide that information (Wilke 2005).

We suggest that the monitoring targets initially be equal to or greater than the baseline numbers of the conservation targets (e.g., if 21 bat species were detected during baseline surveys, then recording 21 or more species in subsequent surveys shows stability). If the relative abundance of a bat species of conservation concern drops below the established targets, then management intervention may be required. Effective bat conservation relies on gathering sufficient information to identify changes in populations that are of conservation concern and to measure the population response to management (Walsh et al. 2006).

Where acoustic monitoring stations are located will in large part determine what species are sampled. Placement of stations depends on the monitoring targets as noted above. Simply placing these in an area paired with camera traps may not provide the desired results as the habitat criteria may vary between medium and large mammals traversing the area vs. use of the area by foraging bats.

Establishing the locations for each monitoring station will generally be determined by the initial baseline sampling period. Experience in the Neotropics has shown that for baseline data collection, a minimum of 3 nights is required for documenting the presence/absence of the common species, although 5-10 nights is considerably better for detecting rare species. Rare species are often those that are of conservation concern and may be focal monitoring targets. This is corroborated by using rarefaction species accumulation curves (Gotelli and Colwell 2001).

The determination of the number of acoustic stations required for the simultaneous collection of data will depend on the area of the landscape to be monitored. We suggest that a statistical power analysis (Aughney and Roche 2006; Barclay et al., 2004; Gerrodette 1987) be used to estimate the optimum number of simultaneous monitoring stations in order to statistically detect trends.

This is important as the results of the power analysis will determine whether the number of stations (sample size) is too high or too low. If the number of stations used is too low, the data may lack the precision to reliably detect trends that are being monitored. Conversely if too many are used, time and resources may be wasted, often for only minimal gain.

p. 71 Under "Avian IUCN species of special concern" it is stated that locations are proposed to be recorded as UTM Coordinates, NAD84 16Q. The national standard and all base topographic maps for Belize use NAD Central America 1927 as the base datum. By using the NAD84 base datum additional conversions will be necessary before the data can be used. Alternatively a global standard WGS84 could be used and that converted to the correct NAD CentAm 1927 base datum allowing spatially explicit data recording.

p. 71 "At BCEP the Yellow-headed parrot (*Amazona oratrix*) is listed as IUCN-Endangered (IUCN 2009)." This species is listed by IUCN as globally endangered.

p. 72. Section "B3.3. Biodiversity Impact Monitoring Implementation" This section should include the comments or refer to those noted above on monitoring vs. surveillance.

The section "GL3.1. Vulnerability or Irreplaceability", beginning on page 72 appears to be redundant cut-paste information from earlier in the report. If the format for the CCB standard requires this redundancy, this should be more concisely summarized.

p. 73 Table 23: Endangered birds in the Project site. This seems to be in error listing these as Endangered? What is the citation for this? Perhaps the author was implying birds of conservation concern and this should be corrected to reflect the conservation concern status as not to be misleading that all on the list are endangered. The same errors from table 8 occur here and the table appears to be redundant.

Tables 24 and 25 are also redundant and appear to be filler, including the incorrect taxonomic and IUCN information.

p. 79 "Literature cited" includes numerous citations that are not referenced in the text.

Regarding the sections on birds it would be worth including relevant synthesis from national bird related conservation projects such as Avian Risk (Miller and Miller 1997) and Waterbird Risk assessments for Belize as well as referring to the recently completed Important Bird Areas project for Belize in the context of the BCEP.

Other key national projects that were over looked that would add support include the Key Biodiversity Areas (Meerman 2007) project and the Phase I of the Risk Assessment of the Bats of Belize (Miller 2009). The Belize National Protected Areas System Plan Meerman and Wilson (2005) and Meerman (2005) would also be valuable.

The last several pages are redundant (i.e., data appears earlier) and again, was cut-and-pasted from the Miller & Miller 2008 report WITHOUT CITATION.

### Literature Cited

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**Comment 3**

Date: 10 March 2010

Sent by: George Headley, Managing Director, Bull Run Overseas, Ltd.

Most private ecological projects are driven by the vision and commitment of key dedicated individuals who do their best, often on a shoe string budget, to preserve and enhance a key biosystem. The addition of carbon credits can make the critical difference between success and failure, particular here in Belize where we struggle to attract the attention of many international donor organizations.

The Boden Creek Ecological Preserve project is a great example of this type of effort and the additional income stream will no doubt be a large help to a very worthy effort to preserve a key and threatened environment in Southern Belize.

Their efforts to preserve the biodiversity of an important ecosystem are to be applauded.

**Comment 4**

Date: 11 March 2010

Sent by: Christine Lancaster, Managing Director, Calcarbon Ltd.

This project document is clearly written and provides a detailed description of the biodiversity of the area, the cultural importance and social impacts of the project. This project is important for the protection of wildlife corridors in Belize and the creation of alternative livelihoods for local people. It is a clearly a project that should be supported.

**Comment 5**

Date: 12 March 2010

Sent by: Bartolo Teul, Program Manager, Ya'axche

[Accessible from this link](#)