

National Conservation Council

General Meeting of the National Conservation Council to be held at the Main Conference Room, Government Administration Building, Elgin Avenue, George Town on 24 August 2016 at 2pm

AGENDA

1. Call to Order
 - a. Attendees, Apologies, Quorum.
 - b. Declaration of Interests.
2. Confirmation of Minutes of 18 May 2016
3. Matters Arising from the minutes/prior meetings
 - a. Implementation of Parts 5 and 7 of the National Conservation Law.
 - b. Nomination of Marine Protected Areas.
 - c. Judicial review of Council's decision to issued permit under section 35 to release genetically modified mosquitoes in a limited scientific trial for a population suppression project.
 - d. WP-01 Confirmation of resolution in writing to ratify execution of the MRCU Import & Release Permit by the Secretary of the Council.
4. Committees
 4. Committees & Reports
 - a. Invasive Species Committee WP-02 Green Iguanas: Report of 2016 Test Culling Exercise.
 - b. Section 35 Imports Committee Report.
 - c. WP-03 Remitting Committees to DoE.
 - d. Climate Change Committee Report.
5. New business
 - WP-03 Terrestrial Protected Area Nomination Assessment System
 - a. WP-02 Green Iguanas: Report of 2016 Test Culling Exercise.
 - b. WP-04 Terrestrial Protected Area Nomination Assessment System.
 - c. Annual Report.
6. Next Meeting - 30 November 2016.
 - a. Expected business - consideration of Areas Nominated for Protection.
7. Any Other Business
8. Adjournment

National Conservation Council

Minutes of the General Meeting held at the Main (ground floor) Conference Room,
Government Administration Building, Elgin Avenue, George Town, Grand Cayman
18 May 2016, 2pm.

1. Call to Order

Notice having been duly given the meeting was called to order at 2:03pm. A quorum was present (see Attendance Appendix, below) and no interests were declared.

2. Confirmation of Minutes

Subject to explanatory amendments to the report of the Climate Change Committee and the identity of Salt Rocks, Little Cayman the approval of the minutes of the meeting held on 24 February 2016 was moved by Davy Ebanks, seconded by Patricia Bradley and passed unanimously.

3. Matters Arising from the Minutes.

Project Future (EY Report Recommendations) – The Chair recapped that a letter had been delivered recommending that 13 of the 69 parcels identified by caucus with potential for divestment be reserved for their environmental value. No formal response had been received but the Minister had verbally acknowledged the input.

Amended Nomination Marine Protected Areas – The Chair reported that the amended nomination had been delivered to the Minister on 10 March and the Council had been invited to present to caucus on 21st March, in the week before the Easter holidays. No indication of a date for consideration of the nomination by Cabinet had been advised.

4. Committees

- a. Invasive Species. Fred Burton, chair of the committee, advised that the first culling under the Iguana Removal Plan was beginning. DoE confirmed that the first day of the cull was slated to be 23rd May.
- b. Section 35 Imports Committee. The chair of the committee had no updates to report.
- c. Climate Change Committee. Lisa Hurlston-McKenzie, the chair of the committee, reported that the Committee was looking forward to the commencement of the National Energy Policy Review Committee and providing its input through the DoE representative on said committee.

5. New Matters

Before commencing consideration of the matters on the agenda the Chair raised a suspension of standing order 5.5.3 of the Council Policy Manual which ordinarily requires that papers for public meetings be available to the members and public seven days in advance and no later than three days in advance in cases of difficulties. The Chair noted that papers for today's meeting, involving input from

Legal Drafting, had meant that these deadlines could not be adhered to. The Chair expressed gratitude that the papers have been expedited to enable the meeting to be held on schedule and proposed a motion to suspend standing order 5.5.3 as permitted by standing order 5.15.1. The motion was seconded and on confirmation that it was intended to take effect for the present meeting only was passed unanimously as a resolution of the meeting.

MRCU Oxitec Mosquito Release Application

IT WAS NOTED that:-

- i) This was an application under section 35(2) of the National Conservation Law which provides that a person who wishes to introduce or release in any part of the Islands a live or viable specimen of an alien or genetically altered species shall apply to the Council under this Law for a permit to do so; ii) Section 35 came into effect on April 22, 2015 along with the rest of Part 6 of the Law; iii) Dr William Petrie of the Mosquito Research and Control Unit has applied for permission to import 1.65 kilograms of genetically modified *Aedes aegypti* (OX513A) yellow-fever mosquito eggs in a maximum of twelve shipments at approximately monthly intervals for the purposes of rearing and release in a limited trial for a population suppression project, to be conducted in West Bay, as a potential first phase of a rolling *A. aegypti* control program (the "Initial Application"); iv) At the request of the Council, Dr Petrie provided additional information on 13 May to accompany and clarify the Initial Application (the "Additional Information", together with the "Initial Application" the "Permit Application"). v) The Council had also received copies of reports and peer reviewed research papers, including:
 - a. 2014 MRCU application to conduct scientific research with *Aedes aegypti* (OX513A)
 - b. 2009 Risk Assessment prepared by Oxitec in collaboration with MRCU.
 - c. Harris et al (2012) Successful suppression of a field mosquito population by sustained release of engineered male mosquitoes. Nature Biotech 30:828-830.
- vi) The role of the Council in considering this application was to assess whether the activities contemplated by the Permit Application would constitute a threat to the biodiversity of Cayman Islands.

The motion that the Permit Application be approved was proposed by the Chair and seconded by MacFarlane Conolly. Following discussion of grounds for approving the application, it was concluded that the risk to the biodiversity of Cayman Islands is limited because:

- i) *Aedes aegypti* is not a native species to the Cayman Islands; ii) *A. aegypti* is associated with human and their infrastructure; iii) For both the above reasons elimination of *A. aegypti* is unlikely to expose a niche for another non-native species to occupy, but it was noted that a potential for *A. albopictus* to spread in longer term application of the method had been raised by other assessments; iv) *A. aegypti* does not feed on non-humans and is not a normal food source for native fauna; v) The genetic material in the insects cannot be transmitted by ingestion; v) *A. aegypti* is a short range flyer and its mating behaviour is highly species specific; vi) The lethal factor confers a strong selective disadvantage on the offspring.

It was also noted that given the disease transmission risks of *A. aegypti* suppression would occur by alternative means of pesticides which pose risks to non-target organisms.

The Chair proposed a list of conditions to be annexed to the Permit, which was seconded by Lisa Hurlston-McKenzie. Following discussion of the proposed conditions:

IT WAS RESOLVED that, subject to the following conditions, the Permit Application be approved:

- i) Whilst a total of 1.65 kilograms of genetically modified *Aedes aegypti* (OX513A) eggs are permitted for rearing no more than 22 million adult male *A. aegypti* may be released in the course of the project.
- ii) Un-used mosquitoes (eggs, larvae, adults) must be frozen at -15 degrees Celsius or colder for more than 12 hours.
- iii) Importation and release shall be according to the schedule outlined in the Permit Application and shall conclude by June 30 2017.
- iv) A copy of the Oxitec trade and business licence and a copy of the Certificate of Occupancy issued by the Department of Planning for the ACL-2 egg rearing unit be annexed to the Permit.
- v) MRCU continue public outreach throughout the study period.
- vi) MRCU provided a report to the Council of progress as at June 30, 2016 and at the conclusion of the project (for the Council Annual Report).

It was further resolved that the Director and Deputy, Research of the Department of the Environment be appointed, individually, to sign the Permit on behalf of the Council.

The National Conservation Council (Licence and Permit) Directives, 2016

IT WAS NOTED that:-

i) The Council may make orders and guidance notes and issue directives for the procedures for determining the circumstances under which permits and licences may be granted under Part 5 of the Law. (NCL 3(12)(f)); The Council may delegate any of its functions, other than the making of orders and the issuing of directives, to the Director or to any committee or sub-committee of its members (NCL 3(13)); ii) In preparation for implementation of Parts 5 and 7 of the Law, at which time the licensing provisions of the Marine Conservation Law will cease to have effect, it was necessary to provide for a continuing system of permits and licences for the take of certain marine life and certain operations having an environmental impact; iii) The National Conservation Council (Licence and Permit) Directives, 2016 (the Licencing Directives) had been prepared to provide such a continuing and updated permitting and licensing framework; iv) It was proposed that the administration of routine applications for such grants of permits and licences be delegated to the Department of Environment on the Council's behalf.

A motion that the Licencing Directives be approved was proposed by the Davy Ebanks and seconded by Fred Burton. Following discussion of the purposes and contents of the Licencing Directives, in particular with respect to spear gun licencing upon motions duly made and seconded **IT WAS RESOLVED**:

- i) That, subject to amendments to clause 3 to replace "regulations" with "directives" at line 2, to amend "fish or animals" to refer to numbers of individuals and to insert "and any relevant Species Conservation Plan, as defined by section 17 of the Law" after "2016"; to clauses 11(3) and 12(1)(d) to amend "google(s) eyes" to "goggle eyes"; to refer to the repeal of the Marine Conservation Directives Amendment (2009) in clause 52 if required; and such other consequential amendments as the legal drafter may deem necessary; the Licencing Directives be

- approved, to take effect from the entry into force of Part 5 of the National Conservation Law and the repeal of the Marine Conservation Law (2013 Revision, as amended).
- ii) That the Department of Environment be delegated on behalf of the Council to receive and process all applications for permits and licences and to approve routine applications, which shall not include spear gun applications.
 - iii) That the Director and Deputy, Research of the Department of the Environment be appointed, individually, to sign any permits or licences or other documents to be issued by the Director on behalf of the Council to applicants in furtherance of these duties.
 - iv) That the Director shall report the activities of the Director in relation to the delegated functions to the Council on a monthly basis, including the number of applications received, pending and disposed of in each category in the period and shall consult with the Council promptly on applications that are not routine.
 - v) That the Secretary be instructed to liaise with the legal drafter for production of the final version of the Licencing Directives for publication, to circulate the publication version to Council for final review and subsequently to deliver the Licencing Directives, as approved to the Gazette for publication.
 - vi) That the Council address a letter to the Minister to express the difficulty in reconciling the long term licencing of spear guns with the National Conservation Law's mandate to ensure protection of biodiversity and the sustainable use of natural resources under the current marine parks system.

Fish Conservation Plan and Interim Directive

IT WAS NOTED that:-

- i) Section 17 of the Law requires the adoption a Species Conservation Plan for each species protected by virtue of inclusion in Schedule 1 of the Law and a function of the Department of Environment is to "develop conservation plans for each protected species taking into account traditional cultural needs" (section 6(2)(j)); ii) Section 17 further prescribes the publication of each draft Species Conservation Plan and the opportunity for the public to submit written objections and representations prior to finalisation and adoption of the Plan; iii) Part 2 of Schedule 1 of the law lists Teleostei (all bony fish) as protected species in order that they may be managed as a group, such as through the 8" size limit in the Marine Conservation Law; iv) All Teleostei and sharks and rays (Elasmobranchii) are protected under either Part 1 or Part 2 of Schedule 1. In preparation for the coming into force of the remainder of the National Conservation Law and the repeal of the Marine Conservation Law (2013 Revision, as amended) the Department has prepared a draft Fish Conservation Plan (the Plan) encompassing all the Schedule 1 fish species; v) The Plan enables licencing of take of species listed in Part 2 and as a result of consultation provides for addition of parrot fish within slot limits and to permit take of fries and sprats.

A motion that the draft Fish Conservation Plan be approved was proposed by the Fred Burton and seconded by McFarlane Conolly. Following discussion of the purposes and contents of Fish Conservation Plan and a reasonable period for consultation, upon motions duly made and seconded **IT WAS RESOLVED:**

- i) That the draft Plan be approved for further consultation in accordance with section 17.

- ii) That the Director, Department of Environment be delegated to carry out a public consultation in accordance with section 17(4) of the Law on the Council's behalf, to report on all written submissions received and to advise on any amendments that might be made in light of the written submissions.
- iii) That the order publicising the notice of the plan specify that the Plan may be inspected at the Department's offices in George Town, on the website, and in at least one public location in each District and that the period for written submissions shall be not less than 56 days from the date of the publication of the notice.

INTERIM DIRECTIVE (section 17(7) and (8))

IT WAS NOTED that:-

i) Section 33 of the Law prohibits, without authorisation, the take of species protected under Schedule 1 Part 1 but permits the continued take of species protected under Schedule 1 Part 2 until such time as a Species Conservation Plan has been adopted for the species or regulations (whether those continuing in effect following the repeal of the Marine Conservation Law or new regulations) apply. ii) Section 34 of the Law makes it an offence to take specimens (any animals or plants) from Cayman waters with certain devices including a spear gun, fish pot or net without authorisation; iii) Section 17(7) of the Law allows the National Conservation Council, on the advice of the Department of Environment, to make interim directives for the management of protected species until such time as a conservation plan has been adopted for those species; iv) In order to ensure that fish species listed in Schedule 1 Part 2 will continue to receive the protections currently in effect by virtue of section 18 of the Marine Conservation Law (2013 Revision, as amended) upon its repeal and pending the adoption of the Fish Conservation Plan or the issue of a regulation by Cabinet, the Department of Environment has advised that those species will require protection by the prohibition of take by means of spear gun, seine net, gill net, or fish pot without a licence.

Upon motions duly made and seconded **IT WAS RESOLVED:**

That the Council issue as an interim directive under section 17(7) of the Law as follows:

- i) The take of any of the fish species listed in Schedule 1 Part 1 and Part 2 of the National Conservation Law, 2013 with a spear gun, seine net, gill net or fish pot is prohibited without a licence.
- ii) This interim directive shall come in to effect immediately upon the coming in to force of Parts 5 and 7 of the National Conservation Law, 2013 and the repeal of the Marine Conservation Law (2013 Revision, as amended).

It was further resolved that the Secretary be instructed to arrange for the Interim Directive to be delivered to the Gazette for publication and the making of the interim directive be reported to Cabinet in accordance with section 17(8) .

National Conservation (Environmental Protection Fund) Guidance Note

IT WAS NOTED that:-

i) Pursuant to the Law the Council shall advise the Cabinet on the use of the Environmental Protection Fund (NCL s47(1)); ii) A function of the Council is managing and making recommendations on the use of the Environmental Protection Fund (NCL s3(9)(a)); iii) The Council may make guidance notes on the criteria for use of the Environmental Protection Fund (NCL s3(12)(c) & (d)); iv) In preparation for implementation of Parts 5 and 7 of the Law it is desirable to issue guidance on the appropriate use of the Environmental Protection Fund; v) A National Conservation (Environmental Protection Fund) Guidance Note (the EPF Guidance Note) has been prepared by the Director and Council.

Upon motions duly made and seconded **IT WAS RESOLVED:**

- i) That the EPF Guidance Note on the use of the Environmental Protection Fund be approved, to take effect immediately.
- ii) That the Secretary be instructed to deliver the National Conservation (Environmental Protection Fund) Guidance Note, as approved, to the Gazette for publication.

National Conservation (Environmental Impact Assessment) Directives

IT WAS NOTED that:-

i) Every entity shall comply with the provisions of this Law and shall ensure that its decisions, actions and undertakings are consistent with and do not jeopardise the protection and conservation of a protected area or any protected species or its critical habitat as established pursuant to this Law. (NCL section 41(1)); ii) Every entity, in accordance with any guidance notes issued by the Council and regulations made under this Law, shall, depending on the situation, either apply for and obtain the approval of the Council or consult with the Council and take into account any views of the Council before taking any action including the grant of any permit or licence and the making of any decision or the giving of any undertaking or approval that would or would be likely to have an adverse effect on the environment generally or on any natural resource. (NCL section 41(3 & 4)); iii) In any consultations or before granting an approval the Council may, in its discretion and within such times as it may specify, require an environmental impact assessment to be carried out of the proposed action. (NCL s43(1)); iv) An environmental impact assessment shall comply with any directives of the Council and regulations made under the Law. (NCL s43(2)(c)); v) The Council may issue directives for the carrying out of environmental impact assessments. (NCL s3(12)(j)); vi) At its meeting on 3 December 2014 the Council approved drafting instructions for Environmental Impact Assessment Regulations and forwarded them to the Ministry; vii) At its meeting on 3 December 2014 the Council delegated the Director act on behalf of the Council to receive and assess development consultations and applications and consult with the Council promptly on matters likely to trigger an Environmental Impact Assessment or a strategic environmental assessment (SEA) or to impact a protected species on Part 1 of Schedule 1 (species protected at all times) regardless of whether an EIA or SEA would otherwise not be indicated; viii) In preparation for implementation of Parts 5 and 7 of the Law and to provide a framework for any Environmental Impact Assessment that may become required or desirable in the interim and pending the issue of the framework by Cabinet in the form of Regulations it would be convenient to issue the EIA framework as directives of the Council.

Upon motions duly made and seconded **IT WAS RESOLVED:**

- iii) That the drafting instructions for the carrying out of Environmental Impact Assessments, as approved by Council for issue in the form of regulations at its meeting on 3 December 2014, and embodied in Working Paper 05 be approved for issue as directives of the Council.
- iv) That the directives be named the National Conservation (Environmental Impact Assessment) Directives 2016 (the EIA Directives).
- v) That the EIA Directives take effect from the entry into force of Part 7 of the National Conservation Law, to remain in effect until such time as they are amended or repealed by Council or superseded by Regulations issued by the Cabinet.
- vi) That the Secretary be instructed to deliver the EIA Directives, as approved, to the Gazette for publication.

Recommendation for entry in to force of Parts 5 and 7 of the National Conservation Law

IT WAS RESOLVED that, with the approval and issue of the Licencing Directives, the Interim Species Conservation Plan, the EPF Guidance Note, and the EIA Directives, the Council recommend to the Minister of Environment that the Cabinet may move immediately to commence, by order, Parts 5 and 7 of the National Conservation Law, the Species Conservation Regulations, 2016 and the National Conservation Regulations on Forms and Fees for Permits and Licences, 2016.

6. Adjournment

There being no other business, the meeting was adjourned at 15:34.

6. Attendance Appendix

Council Member	24 February 2016	Representation
Christine Rose-Smyth	present	Chairperson; Bodden Town, Plants, Terrestrial & Marine Biodiversity
Davy Ebanks	present	West Bay and Marine Conservation
Lisa Hurlston-McKenzie	present	George Town and Sustainable Development & Climate Change
McFarlane Conolly	present	East End and Sustainable Development
		North Side
Wallace Platts	present	Sister Islands and Terrestrial Biodiversity
Christina Pineda	present	National Trust for the Cayman Islands
Patricia Bradley	present	Avifauna & Biodiversity
Fred Burton	present	Terrestrial Biodiversity
Adrian Estwick	absent	Director of Agriculture
Haroon Pandohie	apologies	Director of Planning
Colleen Stoetzel	present	Planning Officer, representing the Director of Planning
Gina Ebanks-Petrie	present	Director of Environment
Timothy Austin	present	DoE Deputy, Research
John Bothwell	present	Secretary

National Conservation Council

Written Resolution of the Council by Correspondence, dated 12 July 2016

RATIFICATION OF EXECUTION OF SECTION 35(2) PERMIT

IT IS NOTED that:

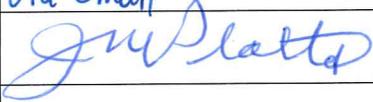
1. At the meeting held on 25 May 2016 the application by the Mosquito Research and Control Unit (MRCU) for a permit to import 1.65 kilograms of genetically modified *Aedes aegypti* (OX513A) yellow-fever mosquito eggs in a maximum of twelve shipments at approximately monthly intervals for the purposes of rearing and release in a limited trial for a population suppression project, to be conducted in West Bay (the Permit), as a potential first phase of a rolling *A. aegypti* control program was considered and approved with conditions by a resolution of the Council. It was further resolved that the Director and Deputy, Research of the Department of the Environment be appointed, individually, to sign the Permit on behalf of the Council.
2. On 8 June 2016 on the fulfilment by MRCU of conditions relating to trade and business licencing of Oxitec Cayman and a certificate of occupancy for the rearing facility the Permit was issued on behalf of the Council over the signature of John Bothwell, DoE Senior Research Officer and Secretary to the Council.
3. The Council' Manual of Policy and Procedure adopted on 3 December 2014 permits written resolutions in circumstances where a Council decision is required urgently and it is not possible to convene a meeting, the Chair may permit the matter to be dealt with through correspondence. A matter is considered to be urgent only if a decision is immediately required to avert an unfavourable, harmful or adverse outcome.
4. The next regularly scheduled general meeting of the Council is to be held on 24 August 2016.
5. In order to avert any potential unfavourable outcome resulting from the omission to execute the Permit according to the terms of the original resolution it is proposed that the Council ratify the execution of the Permit by the Secretary by way of a written resolution.
6. An approved written resolution is also required to be confirmed at the next Council meeting.

IT IS RESOLVED that the execution of the Permit by the Secretary on behalf of the Council be, and is hereby, authorized, approved, ratified, allowed and confirmed.

REMAINDER OF PAGE INTENTIONALLY BLANK

WRITTEN RESOLUTION EXECUTION PAGE

In deciding on written resolutions individual Council Members will submit their response to the Secretary and the Chair in writing. Such decisions require at least seven positive votes to pass. The date of the resolution will be the date the last of submitted signature.

Council Member	SIGNATURE	DATE
Christine Rose-Smyth (Chair, non-voting unless tied)		
Davy Ebanks		JULY 12 th 2016
Lisa Hurlston-McKenzie		
McFarlane Conolly	via email	July 12, 2016
Wallace Platts		July 11, 2016
Christina Pineda		
Patricia Bradley	via email	12 July 2016
Fred Burton		11 July 2016
Adrian Estwick		
Haroon Pandohie	colleen via email	11 July 2016
Gina Ebanks-Petrie	 Ashwell Petrie	11 July 2016
Timothy Austin		11 th July 2016

July 11, 2016

re: Oxiter/MRCU release of Genetically-Modified Mosquitos

I, J. Wallace Platts hereby attest that I did vote in favor of the resolution (NCC meeting of June 29, 2016) approving the test or trial release of the modified mosquitoes.

Should further confirmation be required please feel free to call.
329-7875.

JW Platts
J. Wallace Platts

J. E.
J. E. Haakonsson
Witness

July 11, 2016

Bothwell, John

From: Hermon Conolly [REDACTED]
Sent: Tuesday, July 12, 2016 8:06 AM
To: Bothwell, John
Subject: Re: Conservation Council Decision Via Correspondence

John,

I hereby provide my positive vote.

Regards
McFarlane Conolly

Sent from my iPhone

On 9 Jul 2016, at 9:52 AM, Bothwell, John <John.Bothwell@gov.ky> wrote:

Council Members,

The MRCU Oxitec release permit was issued on behalf of the Council over the signature of the Secretary to the Council, whereas the Council had resolved that the Director and Deputy, Research, of the Department of the Environment be appointed, individually, to sign the Permit on behalf of the Council. Following Council procedure 5.8, council decisions via correspondence, your positive or negative vote (or abstention) is requested to the Chair and Secretary by 5pm 12 July 2016 for the attached Resolution to ratify the execution of the MRCU Permit as-is. For your reference the Permit as issued is also attached and Council procedure 5.8 is reproduced below.

Respectfully,
John Bothwell

5.1. COUNCIL DECISIONS VIA CORRESPONDENCE

- 5.1.1. Exceptionally, if a Council decision is required urgently and it is not possible to convene a meeting, the Chair may permit the matter to be dealt with through correspondence. A matter is considered to be urgent only if a decision is immediately required to avert an unfavourable, harmful or adverse outcome.
- 5.1.2. Such correspondence shall clearly state the motion to be decided upon. It shall also clearly state the time frame for discussion and decision.
- 5.1.3. In deciding on written resolutions individual Members will submit their response to the Secretary and the Chair in writing. Such decisions require at least seven positive votes to pass.
- 5.1.4. The decision will be confirmed at the next Council meeting.

John Bothwell
Secretary, Conservation Council

Bothwell, John

From: Stoetzel, Colleen
Sent: Monday, July 11, 2016 10:30 AM
To: Bothwell, John
Cc: Christine Rose-Smyth
Subject: RE: Conservation Council Decision Via Correspondence

Planning votes yes.

Colleen Stoetzel, AICP | Planning Officer | Current Planning
Department of Planning | Cayman Islands Government | Government Administration Building,
133 Elgin Avenue | PO Box 113, Grand Cayman, Cayman Islands KY1-9000
☎ +1 345 244-6501 (Main) ☎ +1 345 244- 6538 (Direct)
☎ +1 345 769-2922 (Fax) | ✉ colleen.stoetzel@gov.ky | 🌐 www.planning.ky

From: Bothwell, John
Sent: Saturday, July 09, 2016 9:53 AM

Subject: Conservation Council Decision Via Correspondence

Council Members,

The MRCU Oxitec release permit was issued on behalf of the Council over the signature of the Secretary to the Council, whereas the Council had resolved that the Director and Deputy, Research, of the Department of the Environment be appointed, individually, to sign the Permit on behalf of the Council. Following Council procedure 5.8, council decisions via correspondence, your positive or negative vote (or abstention) is requested to the Chair and Secretary by 5pm 12 July 2016 for the attached Resolution to ratify the execution of the MRCU Permit as-is. For your reference the Permit as issued is also attached and Council procedure 5.8 is reproduced below.

Respectfully,
John Bothwell

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John Bothwell

Bothwell, John

From: Davy Ebanks [REDACTED]
Sent: Tuesday, July 12, 2016 9:09 AM
To: Bothwell, John
Subject: Re: Conservation Council Decision Via Correspondence

My vote is yes. Do you want me stop by and sign the form?

Sent from my iPhone

On Jul 12, 2016, at 9:07 AM, Bothwell, John <John.Bothwell@gov.ky> wrote:

Council Members,

A reminder that your vote on the attached Resolution to ratify the execution of the MRCU Permit as-is is requested to the Chair and Secretary by 5pm today, 12 July 2016.

Thank You,

John Bothwell

Secretary, Conservation Council

Senior Research Officer

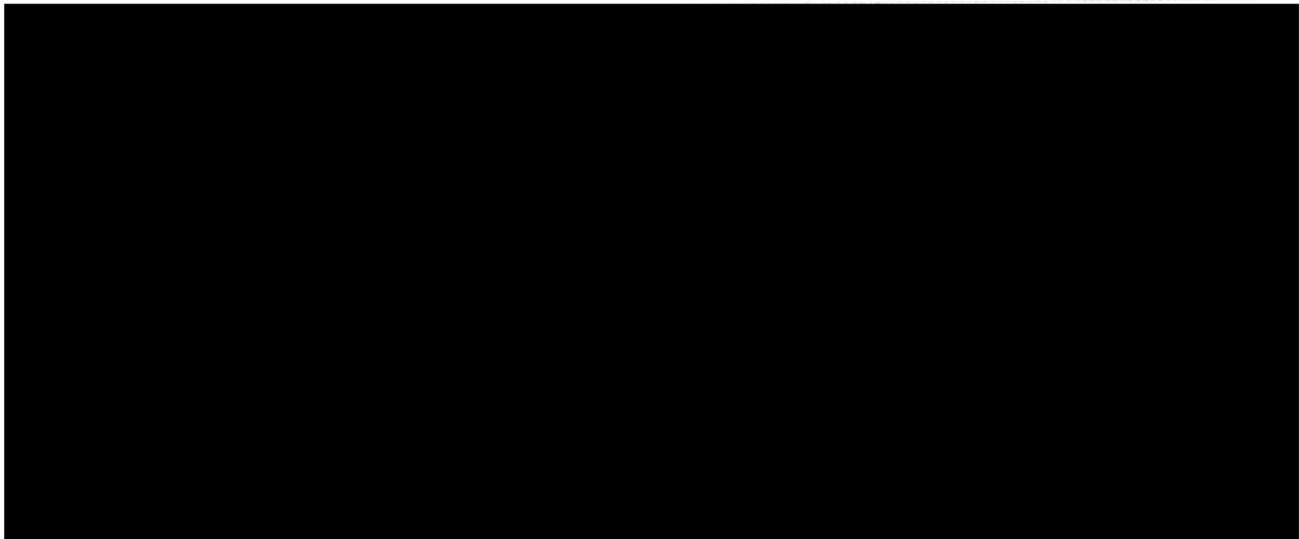
Department of Environment

PO Box 10202, Grand Cayman KY1-1002

Cayman Islands Environment Centre, 580 North Sound Road.

Tel (345) 949-8469 | Fax (345) 949-4020 | John.Bothwell@gov.ky | www.doe.ky

ConservationCouncil@gov.ky | <http://www.doe.ky/laws/national-conservation-law>



Bothwell, John

Subject: FW: Signature

From: [REDACTED]

Sent: Tuesday, July 12, 2016 11:32 AM

To: Bothwell, John <John.Bothwell@gov.ky>

Subject: Signature

Will this work?

WRITTEN RESOLUTION EXECUTION PAGE

In deciding on written resolutions individual Council Members will submit their response to the Secretary and the Chair in writing. Such decisions require at least seven positive votes to pass. date of the resolution will be the date the last of submitted signature.

Council Member	SIGNATURE	DATE
Christine Rose-Smyth (Chair, non-voting unless tied)		
Davy Ebanks		
Lisa Hurlston-McKenzie		
McFarlane Conolly		
Wallace Platts		
Christina Pineda		
Patricia Bradley	<i>Patricia Bradley</i>	13. 7. 16.
Fred Burton		
Adrian Estwick		
Haroon Pandohie		
Gina Ebanks-Petrie		
Timothy Austin		



DEPARTMENT OF ENVIRONMENT

CAYMAN ISLANDS GOVERNMENT

Report

Experimental culls on invasive Green Iguanas, 2016

Executive Summary:

Surveys show that Grand Cayman's invasive Green Iguana population is doubling every 1.5 years, threatening a catastrophic impact on the natural environment and socially unacceptable problems for agriculture, infrastructure and residential areas.

Experimental culls in June 2016 resulted in the removal of 18,838 Green Iguanas, mainly from western Grand Cayman. Bounty hunter groups and skilled hunters under contract both averaged approximately 100 iguanas culled per day.

Use of the DoE compound for receiving and counting dead iguanas is not viable as a long term arrangement. Bounty hunting proved to be problematic in practice, and for future work the contract approach is recommended.

The scale of the Green Iguana control challenge exceeds DoE's current capacity, and requires Government to consider options to resource this major undertaking.

Rationale:

On 24th February, 2016 the National Conservation Council (NCC) accepted a proposal from its Invasive Species Committee to conduct experimental Green Iguana culls on Grand Cayman, and delegated the implementation of this proposal to the Department of Environment (DoE).

The reasons behind this proposal were as follows:

1. Population surveys by DoE of the Green Iguana population indicate that a major population explosion of this invasive species was underway, rising from about 200,000 in 2014 to 300,000 in 2015, doubling every 1.5 years.
2. Impacts to domestic environments, commercial landscaping, agriculture, utility infrastructure, and natural environments are so severe that current Green Iguana population levels, let alone the ongoing increase, is unacceptable to society.
3. Almost no locally relevant information or experience was available to assess what an effective control program would cost, or how it should be designed to be most cost-effective and manageable. Gathering this information and experience required trying out different approaches in practice.

Funding granted from the Environmental Protection Fund to the NCC was available for this work in the 2015-16 financial year.

The Experiments:

Two culling experiments were conducted by DoE in June, 2016. One involved skilled hunters under contract to clear specific areas. The second experiment tested a limited “bounty” approach.

Skilled hunters under contract:

The first experiment focused on three specific areas in western Grand Cayman, where Green Iguana population densities are very high: The Shores subdivision, the SafeHaven Golf Course, and the Britannia Golf Course.

Three experienced iguana hunters, who were licensed firearms users with suitable air rifles, were contracted by DoE. Each hunter was contracted to work on one of the three areas. The contracts were structured with a strong performance bonus incentive to bring the Green Iguana populations in these areas down by at least 90% in two weeks.

All iguanas culled in these areas were brought to DoE for counting, and to obtain biological data relevant to forward planning.

The three areas were surveyed by DoE staff before and after the culls, to record the actual change in Green Iguana population density and so to measure the success of the culls.

Restricted Bounty:

A public meeting was held by DoE in December 2015, to which all resident persons who had experience in, or interest in culling Green Iguanas, were invited. All attendees at that meeting were later invited to participate in the restricted bounty experiment. From that pool of interested and motivated people, 18 individuals came forward to be registered as cullers for a one-week experiment that followed the skilled hunter trial. The primary focus area was from Grand Harbour to Barkers, including George Town, the Seven Mile Beach and West Bay.

Registered cullers agreed to observe conditions relating to humane killing of iguanas, and to bring freshly culled iguanas at set times to DoE for counting. Registered cullers were free to involve other people under their registration, making independent financial arrangements, provided all persons operating under the registered cullers observed the same conditions.

Counted iguanas from registered cullers were tallied for a final payment to each registered culler of \$5 per iguana.

Findings:

Effectiveness:

Skilled hunters under contract were successful in two of the three areas. In both golf course properties, Green Iguana populations were brought well past a 90% reduction in two weeks. However, as soon as the cull ended, Green Iguanas very rapidly re-invaded from adjacent land.

In the Shores subdivision, skilled hunting was less effective, at least in part because a large proportion of the target iguanas were relatively inaccessible and hard to detect due to mangrove habitat and canals.

In two weeks, the three skilled hunters removed a total of 4,370 Green Iguanas from these three sites, killing an average of 100 iguanas per day and achieving overall a 93% reduction of the population in all three sites at the start of the cull.

Bounty hunters were also effective, removing 14,468 Green Iguanas mainly from western Grand Cayman, in one week. Registered cullers (in groups including their associates) each culled an average of 109 Green Iguanas per day.

Costs:

Direct payments to hunters / cullers were as follows:

Method	Total Iguanas Culled	Total Payment	Average cost per Iguana
Skilled Hunters	4,370	\$ 25,000	\$ 5.72
Bounty Hunters	14,468	\$ 72,045	\$ 5.00

However, there was considerable variation between skilled hunters: the most cost-effective skilled hunter culled 3,024 iguanas for \$10,000 which is equivalent to \$3.31 per iguana.

In addition to payments to hunters, the main cost to DoE was an immense demand on staff time, preceding and during the culling experiments.

For example, at least 349 staff person-hours were expended in counting the 14,468 iguanas from the restricted bounty experiment alone. Costs during the restricted bounty experiment also included rental of a disposal skip, and protective clothing for staff handling iguana carcasses. Factoring in these indirect costs, the real cost to the Cayman Islands Government during the restricted bounty experiment was equivalent to \$5.91 per iguana.

The full expenditure record for the trial culls is presented at the end of this document.

Operational limitations and concerns:

In the course of these two experimental culls, a number of operational limitations and concerns became apparent. These are important considerations in planning future operational Green Iguana control measures.

1. The demand on DoE staff time required by the experiments was unsustainable, as this diverted many staff from a wide range of primary duties for an extended period. The Department cannot continue on this basis, and certainly cannot envisage operating a larger scale operation of that kind with existing resources.
2. The cost of the operation in financial terms was higher than DoE staff and management feels is ideal.

3. Offensive odour and contamination of the counting and disposal area created an unpleasant working environment, and stimulated complaints from neighbouring buildings and workers.
4. During the limited bounty experiment, conditions imposed on the hunters were not effectively communicated to their subordinate team(s). As a result inhumane treatment of iguanas occurred, and a growing number of unaffiliated persons sought to get involved. By the end of the week, this led to some disorderly and even aggressive interactions with DoE's counting staff.
5. Scaling up the operation to the level required to reverse the Green Iguana population growth will require an approach which reduces DoE overheads, and keeps down the per-iguana cost. DoE estimates a cull of 177,500 adult and sub-adult iguanas per year will be necessary to initiate a decline in the Green Iguana population if we begin the operational cull in 2017. This implies an operation almost ten times larger than the recent experimental culls.
6. In the first year of a sufficiently resourced cull, a biomass of the order of 200 tons of iguana carcasses per year will be generated and will have to be disposed of. During the June 2016 experiments it already became clear that incinerator capacity at the George Town landfill would be nowhere near sufficient to handle this kind of mass, in event it is brought back into service. While it is possible that some fraction of the cull may be taken for human consumption, we must expect that the vast majority will have to be received by and disposed of at the landfill facility. Arrangements may need to be developed with the Department of Environmental Health.

Future Strategy Alternatives:

Bounty Hunting:

By its nature, bounty hunting requires an independent agency to count culled Green Iguanas in order to calculate and justify payments to hunters. At operationally useful scales, this requirement creates a major overhead which DoE cannot meet with existing staff resources. Other issues with management of humane treatment of iguanas, difficulties in paying government funds to unregistered members of the public, handling of old, decomposing carcasses etc, all combine to make this a severely problematic option.

"Honeypot" Hunting:

The observed pattern of rapid immigration to recently culled sites such as golf courses (which support high densities of Green Iguanas), suggests that sustained culling in such areas could

progressively draw in and kill iguanas from surrounding lands. Such immigration can be extremely rapid: for example after the skilled hunter cull successes were verified by surveys, immigration of iguanas from surrounding areas resulted in an 82% rebound in these three cull sites, in only two weeks.

A network of appropriately spaced honeypot areas could effectively clear iguanas from a much larger area. The optimal spacing of honeypot areas would initially have to be determined on the ground, by survey work, and may vary depending on land use in and around the culling zones.

If honeypot culling was conducted as a sequence of culling contracts in the specified area, repeated at appropriate intervals, the honeypot area would act as a population trap, drawing in and removing iguanas from surrounding areas, for as long as the effort continued. This approach could be implemented without the overhead burden of counting culled iguanas, by issuing repeating contracts with performance incentives based on before-and-after population surveys. This is the payment structure we used successfully in the skilled hunter experiment, and it should work equally well without any requirement to receive and count the culled iguanas.

Progressive Area Clearance:

By beginning an area-by-area cull from one end of the island and proceeding systematically forward, an area cull operation can avoid being undermined by reinvasion. As with honeypot culling, this approach also can be implemented without the overhead burden of counting culled iguanas, by issuing contracts with performance incentives based on before-and-after population surveys.

Before-and-after surveys to measure culling contract fulfillments:

In the course of population surveys in 2014 and 2015, and additional surveys focused on the cull areas in the experiments, we have found our survey techniques to be consistently accurate and reliable, provided that observers are well trained. We can therefore be confident in using these surveys to assess contract performance and estimate the numbers of iguanas being culled.

Before-and after surveys would remain a DoE overhead, but these require a lower staff commitment than daily counting of culled iguanas.

Expenditure 2015-2016

The following expenditure was made by DoE up to 30th June 2016, from EPF funds authorized through the National Conservation Council, for the experimental green iguana culls reported above.

GL Date	Vendor Name	Line Description	Debit
15-Dec-15	Cayman Airways	GWYQEP - M. Vallee - Green Iguana Meeting - PO # 3211	127.05
18-Dec-15	Tortuga Rum Co	Refreshments - Green Iguana Meeting - Dec 10th - PO # 3213	53.58
18-Dec-15	Foster's Food Fair	Refreshments - Green Iguana Meeting - Dec 10th - PO # 3212	60.11
02-Jun-16	DoE petty cash	Scale Weight Etc. - Iguana Culling	51.25
08-Jun-16	AL Thompson's Home Depot	Hand Sanitizer-dusk masks- litter trays - Green Iguana Project - PO # 3723	39.95
08-Jun-16	Cost U Less	Sponges-Gloves-Bleach-Clipboards-Receipt Book - Green Iguana Project - PO # 3722	51.12
08-Jun-16	Kirk Home Centre	Safety Goggles & Coveralls - Green Iguana Project - PO # 3721	29.42
08-Jun-16	Roper Enterprises Ltd	Rubber Apron - Green Iguana Project - PO # 3720	26.95
08-Jun-16	Uncle Bill's Home Improvement Centre	Rain Suit- Green Iguana Project - PO # 3719	30.50
10-Jun-16	Cost U Less	Sponges-Gloves-Bleach-Clipboards-Receipt Book - Green Iguana Project	20.99
16-Jun-16	AL Thompson's Home Depot	3 x storage totes & rubber boots - Iguana Project - PO # 3730	131.00
21-Jun-16	Cost U Less	Tents x 2 - Green Iguana Project - PO # 3759	399.98
23-Jun-16	Kirk Home Centre	Coveralls - Iguana Project - PO # 3752	82.40
23-Jun-16	Cost U Less	Rubber Gloves - Iguana Project - PO # 3745	50.00
23-Jun-16	AL Thompson's Home Depot	Wheel Barrow - Iguana Project - PO # 3751	135.00
26-May-16	Burke, Troy	Project Mobilisation - Green Iguana Culling	3,000.00
26-May-16	McLean's Culling Services	Project Mobilisation - Green Iguana Culling	3,000.00
26-May-16	R & B Garden & maintenance services	Project Mobilisation - Green Iguana Culling	3,000.00
20-Jun-16	Burke, Troy	Green Iguana Culling - June 2016	2,000.00
20-Jun-16	Ebanks, Clell Brad	Green Iguana Culling - June 2016	2,000.00
20-Jun-16	McLean's Culling	Green Iguana Culling - June 2016	2,000.00

	Services		
23-Jun-16	Professional Waste Management	Delivery & removal of container Jun 20th - 27th 2016 - Iguana Project - PO # 3753	925.00
01-Apr-16	Rivera-Milan, Frank F	Iguana surveys and data analysis Nov-Dec 2015	7,070.00
04-Apr-16	Rivera-Milan, Frank F	Iguana Surveys and report, Feb & March, 2016	2,680.00
04-Apr-16	Royal Bank of Canada	Bank wire charges	35.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	2,930.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	8,395.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	6,280.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	100.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	735.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	970.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,145.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,275.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	1,345.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	2,440.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	11,640.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,015.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,095.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,240.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,280.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	3,420.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,060.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,195.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	4,285.00
30-Jun-16	Ebanks, Clell Brad	Iguana Culling Performance Incentive	5,000.00

30-Jun-16	McLean's Culling Services	Iguana Culling Performance Incentive	5,000.00
30-Jun-16	Registered Bounty Hunter	June '16 Iguana Culling Pilot Programme	6,200.00
TOTAL			109,044.30

National Conservation Council

Remitting committees to the Department of Environment

IT IS NOTED that:

1. The Council may delegate any of its functions, other than the making of orders and the issuing of directives, to the Director or to committees of its members. (National Conservation Law (2013) section 3(13)).
2. The Council may also appoint advisory committees with such duties as the Council may specify (National Conservation Law (2013) section 4).
3. At its meeting of 3 December 2014 the Council appointed a committee of Council members known as the Invasive Species Committee. The Committee identified green iguanas as a primary invasive species on which to focus attention, resulting in the recently completed pilot project and test culling on the West Bay peninsula.
4. At its meeting of 23 September 2015 the Council created an Alien Plant Species Committee (Section 35 Committee) to formulate an interim policy for consultation by DoA with DoE on alien plant imports, and in the longer term, other similar actions in relation to alien animal importation and introduction. The committee produced a draft memorandum of understanding outlining the process for consultation among DoA, DoE and the Council on alien plant imports.
5. With the substantial completion of the commencement phase of the National Conservation law and an increase in capacity in the terrestrial unit at DoE it is proposed that further work relating to development of policies for the importation and introduction of alien species, including, but not limited to, the development of criteria for determining whether wild populations or proposed introductions of alien or genetically altered species might cause harm to any of the natural resources of the Islands and procedures for regulating and controlling such populations and introductions as described in section 6(2)(k), may be better carried out by DoE resources in consultation with the Council and other stakeholders, rather than through the committees.

MOTION

- i) That the functions and goals of the Alien Plant Species Committee (Section 35 Committee) and the Invasive Species Committee be remitted to the Director, Department of Environment and the committees be dissolved.
- ii) That the Director proceed with the development of policies for the importation and introduction of alien species, including, but not limited to, the development of criteria for determining whether wild populations or proposed introductions of alien or genetically altered species might cause harm to any of the natural resources of the Islands and procedures for regulating and controlling such populations and introductions as described in section 6(2)(k).

- iii) That the Director carry out these functions in consultation with the Council, other Government agencies, and other stakeholders as appropriate, particularly with respect to development of policies for genetically altered species.
- iv) That the Director prepare a plan of the scope of research and technical input required to prepare directives to be recommended to the Council together with a timetable including prioritisation for the issue of such recommendations.

Moved: _____

Seconded: _____

National Conservation Council

Scoring system for ranking of Nominations for Terrestrial Protected Areas (NCL Section 9)

The National Conservation Council (NCC) expects to receive, during set periods designated by public notice, nominations under the National Conservation Law (NCL) section 9 of areas for protected status. This scoring system is designed to assist NCC in arriving at objectively justifiable decisions regarding which of these nominations to carry forward, given the funding available in the given budgetary period and the purposes, objectives and criteria set out in NCL s.8.

The scoring system has been tested on a range of natural habitat areas in all three of the Cayman Islands. This document describes the principles and operation of the system.

Revisions to this scoring system may only be introduced outside annual nomination and assessment periods.

The scoring system

Each nominated parcel or area of land is scored by measuring or assessing a series of specific criteria, which are designed to be objectively measurable if at all possible.

For two non-technical criteria where no objective measure is possible, scoring is set by averaging subjective scores from Department of Environment (DoE) staff members with knowledge of the areas concerned, who are not directly involved in the nominations. One more technical criterion which is subjectively scored will be initially scored by DoE's Terrestrial Resources Unit but must be reviewed by Council in working group.

All criteria are initially scored on a scale of 1 to 5, with higher scores supporting a higher ranking (more justifiable to protect).

There are a total of 18 criteria in the current (2016) version of this scoring system. These are grouped into criteria for four value classes. Of these criteria, two (Connectivity and Strategy) are only applicable at the parcel level, while the remainder can also be used at wider geographical scales.

For each of these criteria, the corresponding purposes and objectives defined for protected areas in NCL Section 8(1), and the corresponding criteria for selection of protected areas set out in Section 8(2) are listed. All NCL purposes, objectives and criteria are addressed by the scoring

criteria, and all scoring criteria address at least one of the Section 8(2) criteria. The scoring system is thus a quantitative implementation of the selection process laid out in NCL Section 8.

Biological Value	Climate Value	Financial & Strategic Value	Social Value
Plant Biodiversity	Carbon Sequestration	Affordability	Tourism
Integrity	Climate Resilience	Management Ease	Eco-Services
Endangered Species		Island Weighting	
Probable Critical Habitat		Urgency	
Ecological Function		Connectivity	
Threat Distance		Strategy	
Habitat Representation			
Oasis Effect			

Weighting

By consensus of the DoE's Terrestrial Protected Areas Committee, the overall weighting for the total score for individual nominations should allocate 52% of the maximum possible total score to Biological value, 12% to Climate value, 18% to Financial & Strategic value, and 18% to Social value.

The number of criteria in each group already creates a prior weighting in favour of Biological, and Financial & Strategic values, which will vary depending on whether the analysis is at the parcel level or at a larger scale (because two Financial & Strategic criteria are not applicable at larger scales).

The final scores in each group will therefore be adjusted by the factors required to bring the final weighting to the agreed 52-12-18-18 ratio, before summing to generate the final total score for each nomination.

For example, weighting adjustment for a nomination of an area containing multiple parcels will be as follows:

	Biological	Climate	Fin/Strat	Social
Prior weighting	50% (8 criteria)	12.5% (2 criteria)	25% (4 criteria)	12.5% (2 criteria)
Adjustment factor	1.04	0.96	0.72	1.44
Final weighting	52%	12%	18%	18%

The Criteria

Plant Biodiversity	s.8(1)(a),(b),(c),(e), s.8(2)(a-f)
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The overall biodiversity of a nominated area is measured using vascular plant biodiversity as the key indicator.

This is considered the most useful indicator we have available because plant species lists are published for all classified terrestrial vegetation communities¹, and a combination of digital aerial photography, and habitat classification layers are available on the Department of Environment's Geographic Information Systems (GIS). Any nominated area can therefore be characterized by the plant communities present within it, and the documented species list for the dominant community present is used to derive the Plant Biodiversity score.

Plant species lists tend to be longer for communities that were characterized from the most sites, so this scoring is not perfectly comparable from area to area: however when reduced to a scale of 1 to 5, such effects are unlikely to influence scoring outcomes significantly.

Plant species lists range from a low of 3 (in Black and Red mangrove tidal forest), to a high of 130 (dry forests in Grand Cayman's central interior, dominated by Red Birch, Cabbage trees and Ironwood trees). This range is mathematically re-scaled to a range of 1-5 to generate the Biodiversity Score for each plant community.

¹ *Burton (2008): Vegetation Classification for the Cayman Islands. In Threatened Plants of the Cayman Islands: the Red List. Kew Publishing, Richmond, UK.*

Integrity	s.8(1)(a-d); s.8(2)(a),(b),(c),(g)
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The Integrity criterion indicates the extent to which the nominated area is free from historic or current habitat conversion for human uses.

Typically areas of interest as protected areas will be expected to have relatively high integrity, but many potentially eligible areas do have small second-growth patches, localized edge clearance, exploratory bulldozer tracks etc.

The integrity of a nominated area is assessed visually using digital aerial photography, and scored as follows:

5	Totally undisturbed
4	Less than 10% of the land area affected
3	More than 10% of land area affected
2	10% to 50% of land area affected, or area reticulated with roads, tracks etc.
1	More than 50% modified for human uses

Endangered Species	s.8 (1) (a); s.8 (2) (a),(b),(d),(e),(h)
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To the extent known, the number of geographically restricted endangered species (both animals and plants) will be listed for any nominated area. Endangered species which have very broad distributions will not be factored in because they are less informative in the context of selecting one area over another.

The primary source of information for this criterion is DoE maps of point locations and area delineations for particular species. It is important to note this information is constantly accumulating, and so scores may need to be updated from year to year. We can only work with the information we have in geographic form, but should recognize it is significantly incomplete at this time.

In tests of the scoring system the highest incidence of endangered species was 4 and the lowest was 0, so in the current version the Endangered Species criterion score is simply the number of endangered species plus 1, bringing the scores into the standard range of 1-5.

Probable Critical Habitat	s.8 (1) (a),(d),(e); s.8 (2) (a),(b),(d),(e),(f),(h)
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This criterion scores the presence of one or more areas within the nominated area, of habitat which would be reasonably expected to form a "Critical Habitat" for an endangered species at such time as a Conservation Plan (NCL s.17) is written for it.

Probable Critical Habitat areas are known for species with extremely restricted range, and also for wider ranging species which depend on specific areas for nesting or other key stages of their life cycles.

As with Endangered Species, the source for this information is existing DoE mapping, which is expanding and improving over time. The score value is the number of probable critical habitats present, plus 1.

Ecological Function

s.8(b),(c),(e); s.8(2)(a),(c)

This criterion scores the following ecological functions, which benefit natural environments and processes beyond the boundaries of the nominated area.

The six ecological functions identified at this time are as follows:

Filtration of surface water run-off from or to adjacent areas
Support of fresh water lenses
Stimulating or triggering rainfall in down-wind areas
Providing nutrient flows to marine ecosystems
Providing land-sea edge habitat for marine life
Draining surface water from higher surrounding land

The occurrence of these functions in a nominated area is assessed from the geographic setting of the area, its geological substrate (rock, soil, peat), the ecosystem it is part of, and documented geographic information such as locations of fresh water lenses, and drainage channels.

In tests, areas contained between 0 and 6 ecological functions. This range is mathematically re-scaled to a 1-5 score value.

Threat Distance

s.8(1)(a),(b); s.8(2)(a),(g)

Geographic data layers held by the Department of Environment include a biological threats layer, generated with assistance from the Nature Conservancy during a workshop on protected area planning. The layer models the fall-off in threats from various kinds of infrastructure, such as buildings, quarries, roads and land clearances. Proximity to these features brings threats from invasive species moving out into adjacent natural areas. Proximity to these features also signals higher likelihood that land conversions for human uses will spread into adjacent wild areas.

The threats layer is overlain on the nominated area, and the Threat Distance score is measured as follows:

5	None of the area affected by mapped threats
4	Less than a quarter affected by threats
3	Between a quarter and a third affected by threats
2	Between a third and half affected by threats
1	More than half the area affected by threats

Habitat Representation

s.8(1)(a),(b),(c)

This criterion addresses the degree to which some habitats are under-represented in the existing protected area system, as compared to a theoretical optimum where an equally representative proportion of each habitat is protected.

Nominated areas which propose protection of a habitat which is currently under-represented in protected areas are given a higher score for this criterion. Areas which propose protection of habitats already well represented in protected areas will score lower.

These habitat representation scores are calculated separately for each of the three islands.

Habitat mapping already generated by the Department of Environment is used to measure the area of each major habitat of biological value that is present in the nominated area.

For the same major habitats, a “deficit” value is calculated by comparing the areas contained in current protected areas, against a theoretical optimum assuming a proportionate representation. The ideal reference point would be the pre-deforestation baseline before human settlement, but that information is not available. Instead, the theoretical optimum is based on modelling and workshop participant inputs, using MARXAN software in the same workshop as generated the threats layer.

The habitat representation score is then derived by multiplying the area that would be contributed by the nominated area to the habitat deficit, times the proportion unprotected, for each habitat it turn. These are then summed across all habitats to generate a total contribution to deficit, and scaled to a 1-5 range.

Oasis Effect

s.8(1)(a),(d-f); s.8(2)(a-c),(f),(h)

This criterion places value on sites which contain geographically concentrated resources in landscapes where those resources are generally rare. Such sites are of critical importance to certain species assemblages, seasonally or year-round.

These resources include:

- islands of natural habitat in largely urban areas, which concentrate resident and migratory birds and may conserve locally scarce biodiversity;
- fresh water ponds, holes and splits that provide seasonally vital drinking water for animals and humidity for epiphytes;
- brackish and saline ponds that provide concentrated seasonal food resources to resident and migratory water birds.

Nominated areas cannot score above 1 on this criterion unless they qualify as an oasis or contain at least one oasis.

An oasis in this context is defined by:

- a concentrated habitat, water or food resource area less than 80 acres, or a larger if a saline or brackish pond, which meets any one or combination of the following conditions:
 - it is an area of natural habitat completely surrounded by human-modified landscape
 - it contains a freshwater pond, hole or split
 - it contains a feeding area for water birds

For nominated areas which are oases or contain oases under the above definition, presence/applicability of the three identified oasis resources is first sub-scored separately.

Habitat oasis effect is measured by the distance from the nominated area to the nearest neighboring area of natural habitat, excluding any such habitat which has been subdivided into house lots.

Habitat Oasis effect	Distance to nearest neighbouring natural habitat
5	1,000 ft. or more
4	750 to 999 ft.
3	500 to 749 ft.
2	250 to 499 ft.
1	0 to 249 ft.

Freshwater oasis effect is data limited. Until such time as we can map freshwater holes fully, DoE staff will assess nominated areas for this resource based on aerial photography and field knowledge, consulting with other experts and conducting field investigations as necessary.

Freshwater Oasis	
5	Area is dominated by freshwater pond or holes
4	Abundant freshwater holes
3	Moderately common freshwater holes
2	Occasional freshwater hole sparsely present over area
1	No freshwater holes known in area

Food oasis effect is focused on birds using brackish/saline ponds where food resources become seasonally concentrated. These areas should be scored based on the abundance and diversity of birds recorded using them. DoE staff will consult with local ornithologists who can integrate information over multiple years to distinguish sites on significance.

Food oasis	
5	Large ponds regularly attracting large feeding groups of diverse bird species: extremely significant
4	Highly significant
3	Moderately significant
2	Slightly significant
1	Not significant or not applicable

The overall score for the Oasis Effect criterion will be the average of these three sub-scores.

Carbon Sequestration

s.8(1)(e); s.8(2)(f)

This criterion places value on areas which help store and/or lock away carbon, thus contributing locally to a globally urgent need to reverse the increase in atmospheric CO₂ concentration, and so to limit catastrophic climate change. The Cayman Islands is limited (by small size) in the scale of its global contribution in carbon sequestration, but we can play our proportionate part as a group of islands under extreme threat from sea level rise.

This score is allocated simply by assessing the major habitat or habitats present in the nominated area. Habitats are scored as in the following table. Where more than one major habitat is abundant in a nominated area, the sub-areas are quantified and the score is the area-weighted average of the two or more habitat areas.

5	Mangrove and Buttonwood forests and shrublands on peat substrates
4	Primary forests
3	Forest-Shrubland transition areas
2	Dry shrublands
1	Bare and sparsely vegetated areas

Climate Resilience

s.8(1)(a),(b),(c),(e); s.8(2)(a-g)

This criterion is a measure of how robust the nominated area will be under expected conditions arising from global climate change. The key changes expected are rising sea level, and a drier climate.

High lands, and land in the highest rainfall areas, are the least vulnerable to biodiversity loss.

5	Forest areas over 20ft in elevation, not in lowest rainfall settings
4	Areas over 20 feet in elevation, in drier (easternmost) zones
3	Forests and Forest/Shrubland transitions between 6 and 20 ft. in elevation
2	Dry Shrubland on land 6ft. or less above the groundwater table
1	Wetland areas adjacent to the sea, first in line for inundation by rising sea level

Scores are assigned directly based on geographic location of the nominated area, the CI Government’s digital elevation model, and habitat mapping. Intermediate scores are assigned for areas which span multiple categories.

Affordability	s.8(2)(g)
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Cost per acre of land is the main financial consideration when assessing conservation return for capital investment. Actual land values can at best be estimated by professional valuation, but valuations in advance for all nominated areas would be costly and difficult to justify.

For an affordability scale of 1 to 5, actual or realistic values are less important than ranking. To achieve this, a simple land cost index calculator is used which begins with a baseline arbitrary value of \$10,000 per acre and adjusts this for a series of factors that typically exert the most significant influences on land valuation². The final “value” is the baseline plus the sum of all the applicable factor multipliers each applied separately to the baseline.

The per-acre values output by the cost index calculator should not be taken to indicate real life valuations. They serve only to classify land on an ordinal scale from “free” to “very expensive” in four steps.

Ocean frontage	x10, x3, x2, or 0	Depending on proximity
Parcel size	x1, x0.5, 0	<10, 10-100, >100 acres
District	Ranges x5 to x-0.5	GT, WB, BT, EE, NC, CB, LC
Terrain	x0, x-0.25, x-0.5, x-0.8	Dry, mixed, swamp, pond
Planning Zone	x-0.9, 0, x0.1, x0.5, x0.8	POS, AgRes, LDR,MDR,HDR+
Restrictions	x-0.9, x-0.25, 0	ProtArea, adjacent to PA, none
Access	x-0.1 to x0.5	Far, near, ROW, Gazette, unsurf, surfaced
Crown	Zero total	Crown land has sum cost of zero

This calculator outputs cost index “values” per acre for nominated areas, which are then scored into the 1-5 range as follows:

5	Crown land (zero capital cost)
4	<15,000
3	15,000 to <30,000
2	30,000 to <60,000
1	60,000 and over

² Choice of principle factors influencing land values was made in consultation with a local Chartered Quantity Surveyor.

Management Ease

s.8(1)(f); s.8(2)(g),(h)

Also factoring into the expense of acquiring land for protected area, is the likely ongoing cost of management. The management ease criterion estimates this on the 1 to 5 scale by considering costs associated with perimeter protection, managing human activity, and likelihood of developing and having to maintain visitor infrastructure. Both existing and planned or probable infrastructure and activities are considered.

To some extent visitor activity has potential to generate revenue to offset costs. This potential is greater in larger areas, which also have capacity to leave aside undisturbed areas. Larger areas are therefore ranked higher than small areas with visitor infrastructure.

5	Remote area with no boundary issues, access or plans to create access
4	Areas with some boundary issues or limited access, requiring some management
3	Larger areas expected to see low-level human activity, minimal infrastructure
2	Larger areas expected to be intensively visited, requiring infrastructure
1	Small areas with visitor facilities, fencing needs, adjacent to converted land

Island Weighting

s.8(1)(a-c); s.8(2)(a-f)

This is a strategic policy criterion, based on the principle that effort in conservation land purchase overall should be appropriately balanced between the three islands. In proportion to total land area, the percent of land area protected currently varies from island to island, and will change every time a protected area is added.

For the 2016 version of this scoring system, island weights are calculated as follows:

Little Cayman	5
Cayman Brac	4.58
Grand Cayman	1

Urgency

s.8(2)(g)

This criterion must partly be assessed subjectively, with the only objective information being available from pre-consultations with developers and records of unimplemented planning permissions, available through the Department of Environment’s Sustainable Development Unit.

Scores are intended to reflect how soon the land is likely to be committed to conversion for human uses, if not protected.

Members of the Department of Environments’ Sustainable Development Unit will be tasked with assigning scores in the range 1 (unlikely to be developed in the foreseeable future) to 5 (under immediate threat of development), by consensus.

Connectivity

s.8(1)(a-d); s.8(2)(a-g)

This is a parcel-level criterion, which should be set to zero score if the system is used to assess larger, multi-parcel areas.

Where used at the parcel level, the criterion measures the degree to which the parcel connects to, and improves the overall configuration of an existing protected area.

The score is made by inspection of parcel and protected area maps, with associated habitat map layers as needed.

5	Parcel connects two protected areas, or fills a “hole” in a protected area
4	Parcel is extensively connected to a protected area boundary, improves its configuration and/or includes missing key habitat, or contributes to a corridor
3	Parcel connects to protected area but not in a particularly ideal way
2	Parcel is close to protected area offering potential for future connection
1	Parcel is unrelated to existing protected areas

Strategy

s.8(1)(a-f); s.8(2)(a-h)

Again, this is a parcel level criterion, which should be set to zero score if the system is used to assess larger, multi-parcel areas.

Strategic parcels may be those which for example:

- begin the creation of a new protected area
- offer Crown-plus-purchase combinations to lower costs
- buffer environmentally sensitive areas from adjacent development or other threats
- help establish corridors between protected areas
- secure options for visitor activity (e.g trailhead land, traditional trail buffers)
- protect actual or to-be-designated Critical Habitat

Additional strategic values may become evident on consideration of particular nominations.

Scoring of this criterion should be carried out by the DoE Terrestrial Resources Unit, but should also be explicitly reviewed by Council in Working Group as an independent check to ensure impartiality in respect of DoE and non-DoE nominations.

From a baseline score of 1, the strategy score is increased by 2 for each of the above strategic values found to apply in a nominated area. In event the total score in any nomination exceeds 5 then the score should be rescaled across all nominations to bring it back to a 1-5 scale.

Tourism

s.8(1)(e),(f); s.8(2)(g),(h)

This criterion estimates the actual or potential value of a nominated area as a nature tourism asset, bringing direct and indirect benefits to the economy.

Because there are no quantitative metrics which can be used to generate score values for this criterion, scores are assigned by averaging individual subjective assessments by members of the DoE staff not directly involved in protected areas nominations.

Respondents are asked to score nominations highest (5) for areas which have the maximum potential to attract and provide for nature tourism, and score lowest (1) for areas which are inaccessible to visitors and likely to remain so. Areas that serve (or will

serve) a lower volume of visitors, or which are uncertain prospects for future nature tourism activity are rated intermediate.

Social

s.8(1)(c),(e),(f); s.8(1)(g),(h)

This criterion assesses the value of ecological services the nominated area does or will bring to the people of the Cayman Islands. These services may include recreational and physical health opportunities potentially consistent with the purposes of a protected area, such as walking, running, wildlife photography, nature study, swimming and beach activities.

They may also include non-use values, such as pride in knowing of a protected area or species that helps define the character of an island, or value of the option that they may wish to visit a protected area in the future, or that their children might. People living close to a protected area may value views of a wild, natural area, or value the knowledge that they will not have neighbors building houses there, and they may enjoy edge benefits such as forest birds coming out to visit gardens.

Finally there may be some direct services of benefit to people living adjacent or near to a protected area, such as access to fresh ground water maintained by a large forest area, and natural food sources for birds and fruit bats that otherwise might do more damage to backyard fruit crops.

Although there have been attempts to value these sorts of ecosystem services in financial terms, this is a technically difficult process. For the purposes of this scoring system, again for this criterion, scores for nominated areas are assigned by averaging individual subjective assessments by staff members of the DoE not directly involved in nominations, on a scale of 1 to 5.

Implementation

Once nominations have been received and screened to verify they meet the requirements of NCL s.9, all nominations will be delineated on DoE's GIS and then entered into a scoring spreadsheet that implements the scoring system detailed above. DoE will then apply the scoring methodologies detailed in this document, for each nominated area, and will output each area's scores for each criterion, and in total, in a report to NCC.

This Scoring System for ranking proposed protected areas was created by the Department of Environment's Terrestrial Protected Areas Committee. This committee consists of staff from the Department of Environment, with representatives from the National Trust for the Cayman Islands and the National Conservation Council. The membership covers a broad range of expertise relevant to terrestrial conservation.

11th August, 2016

DRAFT