

REQUEST FOR PROPOSALS

Using Pollen Identification Techniques to Determine Plant Species Frequented by Monarch Butterflies

for the Project

Science for Monarch Butterfly and Pollinator Conservation



Commission for Environmental Cooperation

2018

I. Overview

The Commission for Environmental Cooperation (CEC) is requesting proposals from prospective consultants to use pollen identification techniques in order to identify plant species frequented by migrating monarch butterflies (*Danaus plexippus*) during their fall migration (2018). Specifically, the consultant is expected to sample monarch butterflies and nectar resources during the fall migration (October through November) to determine, through pollen identification, the species of plants frequented by the butterflies. The study will be conducted at various sites in the known migration corridors in northeastern Mexico (the choice of specific sites will be based on expert opinion and/or on available records from citizen science databases).

The work described in this request for proposals (RFP) is part of the project entitled *Science for Monarch Butterfly and Pollinator Conservation* from the CEC's 2017–2018 Operational Plan. For a complete description of the project, including tasks and related budget, please visit the CEC website at: <<http://www.cec.org/our-work/projects/monarch-butterfly-and-pollinator-conservation>>.

The Commission for Environmental Cooperation (CEC) was established by the governments of Canada, Mexico and the United States through the North American Agreement on Environmental Cooperation, the environmental side agreement to NAFTA. An intergovernmental organization, the CEC brings together citizens and experts from governments, nongovernmental organizations, academia and the business sector to seek solutions to protect North America's shared environment, while supporting sustainable economic development. Find out more at: <www.cec.org>.

II. Terms of Reference

A. Overview and Scope

The monarch butterfly is considered an important pollinator because it spreads pollen while feeding on the nectar of wildflowers during its fall migration from Canada to Mexico and on the return from Mexico back to the United States and Canada each spring. Identifying pollen found on monarch butterflies could provide valuable information about key nectaring plants frequented by the migrating monarchs. Over the past decade, DNA barcoding has afforded new opportunities in taxonomic, ecological, and evolutionary research by facilitating the identification of species, and can now also be used as a novel technique to identify plant species visited by the butterflies. In addition, direct observations of monarchs using nectar resources can validate the barcoding techniques and aid the development of science-based management plans to conserve high-quality habitat for the monarch along its migratory routes.

B. Description of Services

The consultant shall coordinate with the CEC's designated contacts to accomplish the work described below.

The consultant's research proposal should consider the following specifications:

1. Collection of pollen from monarch butterflies for plant species identification through DNA barcoding and for pollen grain morphological study.
2. Sample collection:

- a. Collect a minimum of 30 monarchs per site per month in at least three sites, representing the northern, central and southern regions of the eastern migratory route in northeastern Mexico.
- b. Collect pollen from live monarchs using a swab and store in appropriate media for plant species DNA barcoding and pollen grain morphological study.
- c. Provide geolocation data and date of monarch collection.
- d. At each collection site and on the same day as sampling events, document and identify plants where monarchs are observed and record activity (e.g., feeding, resting, and mating).
- e. At each collection site in order to validate barcoding, record the number of plants per species in the sampling area—or provide an estimate based on random transects—in order to standardize observations (over a certain unit of time in each sampling area) of the nectar plants on which monarchs are feeding. Representative photos of the floral community should be taken at each sampling event.
3. Collection of leaves from all flowering plants in all sites and taxonomic identification of species. Leaves collected should be added to the Canadian Center for DNA barcoding database <http://ccdb.ca/> to complement the reference library for plant species in Mexico.
4. DNA barcoding:
 - a. Minimum sample size of 95 monarchs is required.
5. Samples and pictures collected for morphological identification should be sent to the most appropriate laboratory facilities (to be identified by the consultant in coordination with the CEC) to complement the database and for reference purposes.

Deliverables

1. **Progress Report I** that includes:
 - a. Brief description of proposed sampling sites, including geolocation data and information to support the selection of these sites
 - b. Detailed description of proposed sampling methods
 - c. Copy of collection and sampling permits, if applicable
2. **Progress Report II** that includes:
 - a. Update of all elements from *Progress Report I*, as applicable
 - b. Georeferenced and temporally referenced database of monarchs sampled
 - c. Database of direct observations of monarchs foraging (a minimum of 10 monarch observations per sampling area per month)
 - d. Database of plant species abundance and diversity in the sampling area or an estimate based on random transects in order to provide standardized observations (over a certain unit of time in each sampling area) of the nectar plants on which monarchs are feeding, to validate barcoding
 - e. Representative photos of the floral community at each sampling event
 - f. Database of leaves collected, with taxonomic identification of species and at least two pictures per species for verification of identification
 - g. Detailed description of the barcoding procedure
 - h. List of plant species identified through the barcoding for each monarch, including the number of reads (or depth of reads)

3. *Final Report*

- a. Update of all elements from *Progress Report II*, as applicable
- b. Summary of results
- c. Lessons learned, including recommendations on scaling up future efforts relevant for understanding the use of nectar resources by monarchs and other pollinators and/or suggestions for any desirable modifications of the methodology, as needed
- d. Recommendations for improving future analyses of either sampling (swabbing) or barcoding

C. Periodic Reporting Requirements

Throughout the project, the consultant will work in close collaboration with the CEC, the project's Steering Committee, and experts to gather information that will support delivery of the work. Such experts will include scientific authorities on the monarch butterfly and other pollinators. The consultant may consult directly with government officials and other experts, as needed. However, the consultant shall report only to, and receive direction only from, the CEC designated contact.

The CEC Secretariat will forward draft deliverables to the project's Steering Committee and other experts for their review and comment. The CEC Secretariat will arrange teleconferences with the consultant, the CEC designated staff, and other experts as needed. The goal of these teleconferences will be to present the products and assess progress on the project.

The consultant will work in his or her own offices/laboratories and onsite at sampling sites.

A proposed schedule and list of deliverables is shown below. However, in their proposal, prospective consultants are encouraged to suggest an alternative schedule and list of deliverables. Note that all work within the contract, including submission of the final report, must be completed by 30 January 2019.

By 12 October 2018	Submission of Progress Report I (as described under Deliverables, point 1)
By 19 November 2018	Submission of Progress Report II (as described under Deliverables, point 2)
By 12 December 2018	Submission of draft final report (as described under Deliverables, point 3)
By 14 January 2019	Submission of final report (as described under Deliverables point 3), drafted with consideration of all comments from the Steering Committee and the CEC

D. Quality of Deliverables

The consultant is responsible for providing deliverables of **publishable quality** (i.e., copy-edited prior to submission) in Spanish or English and, when applicable, for the technical editing of the materials. The consultant will submit to the CEC Secretariat all written material (including complete drafts and final reports) in Microsoft Word, following the format of the CEC's [Report Template, as applicable](#), and adhering to the precepts of the [Guidelines for CEC Documents and Information Products](#), as supplemented by the CEC's Spanish Style Guide

<http://www.cec.org/es/acerca-de-la-cca/posibilidades-empleo/documentos-de-referencia> or English Style Guide http://www.cec.org/sites/default/files/documents/opportunities/18873_style-guide.pdf. Supporting documents for tables, figures and maps will be submitted with the report in their original file format (e.g., Excel or ArcGIS). Note that all amounts shall be presented in metric units. The CEC Secretariat will be responsible, when applicable, for translation, printing, publication and distribution of products from this activity.

Upon delivery by the consultant of a final version of the report or other written materials under the project, the CEC reserves the right to a 15-business day period to review the document(s), notify the consultant of any potential issues or errors, and return the document(s) to the consultant for appropriate corrections, at no extra cost. In all cases, contract payments will be withheld if products submitted to the CEC fail to fulfill the quality and formatting requirements specified above. In the event that the consultant neglects to make the required corrections or if, following corrections, a deliverable remains unsatisfactory, the document shall be edited or revised by a third party designated by the Secretariat, the cost of which shall be deducted from the consultant's fees at a rate of C\$60 per hour.

E. Plagiarism

Plagiarism is the act of conveying someone else's original expression or creative ideas as one's own and can be a violation of copyright law. Neither intentional nor unintentional plagiarism is acceptable to the CEC. The consultant must follow good scholarly methodology in preparing reports and deliverables under the contract, including systematic referencing in footnotes or in-sentence references, for any secondary sources, quotations, data, etc., that do not originate with the author. Sources for tables and figures reproduced from other literature must be given in a "Source" attribution immediately below the table or figure. Failure to properly reference the source of such borrowed material constitutes plagiarism and will be considered a breach of contract. For further information, see [Guidelines for CEC Documents and Information Products](#). In addition, for every written deliverable submitted, the Consultant must use iThenticate or an equivalent software approved by the Commission, to validate the written product in question and must forward the plagiarism review results to the CEC at the time of document submission. Contract payments will be retained if products do not fulfill these requirements.

III. Requirements and Evaluation of Proposal

A. Mandatory Requirements

To be eligible for further consideration, all consultants must fulfill the following basic requirements.

1. In-country Ability

The consultant, as well as all their personnel and subconsultants, must reside and be authorized to work legally in Canada, Mexico or the United States of America. If travel is required, the consultant must possess valid documentation to travel within these countries.

2. Key Personnel

For the purposes of this RFP, the term "consultant" may refer to either a group or company or a single individual.

If a proposal is submitted by a consortium of individuals or institutions, a “lead” consultant should be designated to take responsibility for ensuring overall coordination, the coherence of activity outputs, and the integration of information and ideas.

3. Qualifications Required

The consultant must possess:

- Competence and experience in conducting relevant field work, laboratory work, and data analysis
- Excellent writing skills
- Experience in plant species identification
- Experience working with DNA barcoding for plant species
- Demonstrated knowledge of monarch butterfly biology and insect-plant interactions
- Competence and experience in developing science-based reports

4. Proposal Submission

It is the intention of the CEC Secretariat to include the **Terms of Reference (Section II)** of this document) in the contract negotiated with the successful applicant. Therefore, prospective consultants should refer to these for more detailed information on the project and the services to be provided. Prospective consultants are requested not to reiterate the Terms of Reference in their submissions, but are invited to suggest modifications to enhance the proposal, keeping within the stated end date and maximum budget of the project.

Research proposals should include, but not be limited to, the following elements:

- A brief statement of interest and intent. This statement should be based upon and serve to demonstrate the consultant’s experience and subject knowledge. The statement should address desired results; guidelines (parameters within which results are to be accomplished); resources (human, financial, technical, or organizational support available to help accomplish the results); and other aspects deemed applicable by the consultant. The purpose of this statement is to demonstrate not only the consultant’s general and specific familiarity with the subject area, but also to highlight writing skills;
- A short overview stating the background of the project research;
- A general work plan, including potential sites, timeline for data collection and sample size;
- Proposed methodology, indicating relevance and expertise of sampling and laboratory methodology, as well as data analyses;
- Expected results;
- Potential collaborations that may result from this work, if applicable;
- Suggested modifications to the Terms of Reference, if applicable, and the reasons for such modifications;
- Resumes/ CV of the key personnel involved in the project;
- Detailed cost breakdown, including number of person/days of key and other personnel, direct and indirect costs, travel costs and applicable taxes;
- Two samples of previous work;
- Contact information for three references.

A *Declaration of Acceptance and Impartiality and Independence*, completed and signed by the lead consultant, on behalf of all his or her personnel, should also be submitted with the proposal (see Annex).

Evaluations will take into account the completeness of each proposal, compared to the elements requested above.

B. Other Information to be provided

Potential consultants are encouraged to submit any additional information that they believe will assist the CEC Secretariat in the evaluation of their proposal. However, the proposal should not exceed five (5) pages, exclusive of applicant resumes, samples of previous work or corporate brochures.

C. Type of Contract to be used for these Services

The CEC Secretariat intends to use its standard milestone-based contract for these services. A sample is available upon request.

All work within the contract must be completed by 30 January 2019.

D. Selection Procedure

The consultant deemed best qualified will be selected on the basis of a competitive process, in accordance with sections 2.5-2.7 of the [CEC Consultant Services Procurement Manual](#).

Proposals that the CEC Secretariat determines to be complete will be evaluated according to the procedure described below.

Each complete proposal that is submitted will be evaluated by the CEC Secretariat according to the following criteria, with a point rating assigned for each:

Evaluation Criteria	Maximum Point Rating
Understanding of the project and completeness of proposal	20
Suitability of the proposed work plan and methodology to address project objectives	40
Consultant's experience and qualifications and competency of key personnel	20
Consultant's ability to summarize research results and writing ability	10
Adequacy of budget and cost efficiency	10
<i>Total</i> 100	

A minimum score of 80 will be required for the prospective consultant's proposal to be eligible for further consideration.

Proposals in response to this request will be evaluated by the CEC designated staff and technical reviewers, who will form an Evaluation Committee.

E. Estimated Level of Resources Required

The envelope available is C\$15,000 (fifteen thousand Canadian dollars), including all fees and expenses required to complete the work (such as professional fees, laboratory and field equipment and materials, and any travel). The cost of using iThenticate or other plagiarism detection software (US\$50) should also be considered.

Note that the CEC accepts that overhead be charged for administration and other indirect costs up to 15% of the total value of the contract.

If the proposal were presented by a consultant established in Mexico, the applicable value-added tax will be 0%, in accordance with Article 29, section IV, paragraph a) of Mexico's VAT Act, as these are technical services that were engaged from abroad.

F. Basis of Payment Required

Payment shall be made only for *bona fide* consultant fees and legitimate expenses incurred in accordance with the contract for professional services, and only upon receipt and documented acceptance by the Secretariat of statement(s) of account/invoice(s) from the consultant. Settlement of invoices that are acceptable for payment will normally be made 30 days from the date of receipt by the Commission.

G. Financial and Other Confidential Information

For this proposal, the CEC Secretariat will not require the submission of any confidential information nor will the CEC Secretariat require information regarding insurance, bonding financial status, or company ownership.

H. Conflict of Interest

"Conflict of interest" means, but is not limited to, a situation where a consultant's personal interest is sufficiently connected with professional duties under the contract, such that it results in a reasonable apprehension that said personal interest may influence the exercise of professional responsibilities under the contract. For example, a direct conflict of interest exists when the consultant is also a government official who is involved in CEC work, or is related to or closely affiliated with a government official who is involved in CEC work, CEC Secretariat staff member or third party involved with the performance of the services.

The consultant will inform the CEC Secretariat of any circumstance that existed prior to the execution of this contract, or that could manifest during the performance of this contract, which could constitute a conflict of interest. The consultant will complete and sign, on behalf of all his or her personnel, the attached *Declaration of Acceptance and Impartiality and Independence* (see Annex). The Consultant will also take note of the [CEC Consultant Services Procurement Manual](#).

I. Deadlines for Proposal Submission and Decision

The proposal, including all relevant attachments, must be received by the CEC Secretariat offices by **17:00 EST on 25 September 2018**. Proposals submitted after this deadline will not be considered.

Proposals must be submitted via e-mail to gofarrill@cec.org. Proposal format may be in Microsoft Word or Adobe PDF format. Once the proposal has been submitted electronically, the

CEC will confirm receipt within three business days. If receipt is not confirmed by e-mail within this time, **applicants must contact the CEC**. The contact person is:

Georgina O’Farrill
Project Lead – Ecosystems and Green Growth Units
Commission for Environmental Cooperation
393, rue St-Jacques Ouest, bureau 200
Montreal, QC, Canada H2Y 1N9
Tel: 514-350-4336; Fax: 514-350-4314

The CEC Secretariat intends to select the consultant and notify the applicants within a reasonable period of time following the proposal submission deadline.

ANNEX (see also Schedule D in CEC standard contract)

CONSULTANT'S DECLARATION OF ACCEPTANCE AND IMPARTIALITY AND INDEPENDENCE FOR CONTRACT

I, the undersigned,

Last Name: _____ First Name: _____

ACCEPTANCE

☐

hereby declare that I accept to serve as consultant in the subject contract.

IMPARTIALITY AND INDEPENDENCE

(If you accept to serve as a consultant, please check one of the two following boxes. The choice of which box to check will be determined after you have taken into account, inter alia, whether there exists any past or present relationship, direct or indirect, with any of the Parties to the North American Agreement on Environmental Cooperation ("NAAEC") or their Commission for Environmental Cooperation ("CEC") representatives, Secretariat staff, and/or third parties involved in the performance of this contract, whether financial, professional, familial, or of another kind and whether the nature of any such relationship is such that disclosure is called for pursuant to the criteria set out below. Any doubt should be resolved in favor of disclosure.)

☐

I am impartial and independent with respect to the NAAEC Parties and their CEC representatives, CEC Secretariat staff, and third parties involved in the performance of this contract, and intend to remain so; to the best of my knowledge, there are no facts or circumstances, past or present that need be disclosed because they are likely to give rise to justifiable doubts as to my impartiality or independence, and that may constitute a conflict of interest.

OR

☐

I am impartial and independent with respect to the NAAEC Parties and their CEC representatives, Secretariat staff, and/or third parties involved in the performance of this contract, and intend to remain so; **however**, I wish to call your attention to the following facts or circumstances which I hereafter disclose because they might be of such a nature as to give rise to justifiable doubts as to my impartiality or independence, and that may constitute a conflict of interest. Where facts or circumstances exist that might give rise to the latter such doubts, I may set out measures I intend to take to mitigate or eliminate any doubts regarding my impartiality and independence, and/or a possible conflict of interest. (Use separate sheet and attach.)

Date: _____

Signature: _____