

IUCN/SSC Butterfly Specialist Group Report

Assessment of Global Research and Conservation Needs for Butterflies

Analysis of Survey Results



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Summarized results from the IUCN/SSC Butterfly Specialist Group survey disseminated
March 2011 through September 2011

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International Union for Conservation of Nature (IUCN), helps the world find pragmatic solutions to our most pressing environment and development challenges. It supports scientific research, manages field projects all over the world and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practice.

The IUCN Species Survival Commission (SSC) is a science-based network of some 7,500 volunteer experts from almost every country of the world, all working together towards achieving the vision of “A world that values and conserves present levels of biodiversity.” The Species Survival Commission advises the Union on the technical aspects of species conservation and mobilizes action for those species that are threatened with extinction.

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THE XERCES SOCIETY
FOR INVERTEBRATE CONSERVATION

The Xerces Society for Invertebrate Conservation is a nonprofit organization that protects wildlife through the conservation of invertebrates and their habitat. Established in 1971, the Society is at the forefront of invertebrate protection worldwide, harnessing the knowledge of scientists and the enthusiasm of citizens to implement conservation programs. The Society uses advocacy, education, and applied research to promote invertebrate conservation.

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Executive Summary

The International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC) re-formed its Butterfly Specialist Group in 2010. An online survey was developed by the group to assess current conservation projects as well as global research and conservation needs for butterflies in order to determine potential conservation actions. The results of the survey provided contact information for globally active butterfly researchers and conservationists, home countries as well as countries where participants work, names of organizations and types of projects in which the participants are currently involved, and the major butterfly conservation needs and opportunities within the participants' regions. A summary of the analyzed results are below.

Butterfly experts and conservationists who completed the entire survey: 161

Surveys with incomplete information were not included in the analysis.

Geographical range of participants: 39 different countries

The greatest number of respondents are from the USA (37%), UK (9%), Brazil (7%), and Canada (4%).

Professional and/or amateur occupations of respondents:

- 24% Professors
- 22% Scientists and/or researchers
- 17% Citizen scientists
- 13% NGO presidents/executive directors
- 13% NGO program directors/officers

Participant's professional and/or amateur affiliations:

- 36% Universities
- 19% NGOs
- 17% Citizen Scientists
- 13% Museums/botanical gardens
- 8% Government agencies
- 5% Research centers
- 3% Private sector

Geographical range of respondent's butterfly conservation and research projects: 92 different countries

Many participants reported working in multiple countries.

Butterfly conservation and research projects of participants:

(Respondents were allowed to identify multiple needs)

- 60% Butterfly/vegetation inventories, surveys, assessments, monitoring, or inventory databases
- 58% Butterfly related research
- 19% Conservation planning
- 14% Land management or restoration
- 12% Environmental education and training
- 7% Butterfly taxonomy
- 6% Red listing of rare butterfly species with IUCN
- 4% Butterfly gardening
- 2% Reintroduction or relocation of rare butterfly species
- 2% Policy
- 2% Economic activities related to butterflies

Years of butterfly conservation experience:

- 40% of respondents have 20+ years experience
- Another 25% of respondents have between five and ten years experience

Respondents identified the following butterfly conservation needs and concerns:

(Respondents were allowed to identify multiple needs)

- 60% Habitat protection and management
- 44% Butterfly inventories and monitoring
- 36% Research as a butterfly conservation need or concern
- 14% Environmental education
- 9% Governmental protection and regulation of rare butterflies
- 5% Sustainable economic uses for butterflies
- 5% Pesticides, herbicides, and genetically modified species
- 5% Sustainable landscaping in urban areas
- 4% Invasive species

Background

In 2010 the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC) reformed its Butterfly Specialist Group. The IUCN first formed a butterfly group (then called the Lepidoptera Specialist Group) in 1976, with Robert Michael Pyle, founder of the Xerces Society for Invertebrate Conservation, as its chair. The Specialist Group continued its work under the guidance of Tim New, but unfortunately, it fell into inactivity in recent years.

Scott Hoffman Black, executive director of the Xerces Society for Invertebrate Conservation, was appointed as chair of the new Butterfly Specialist Group in the fall of 2010. One of the first goals of the Butterfly Specialist Group was to launch an initial assessment of global research and conservation needs for butterflies. To complete this task, an online survey was developed and sent to butterfly researchers and conservationists worldwide. The survey gathered information on current butterfly conservation projects, priorities, and needs, and about the individuals and organizations engaged in these efforts. The survey was disseminated in March 2011; this report summarizes the findings from responses received during the first six months.

Survey Methodology

The survey questionnaire was developed for the IUCN/SSC Butterfly Specialist Group by Scott Hoffman Black, Matthew Shepherd, and Ashley Minnerath of the Xerces Society. In general, the questions were presented in an open-ended format, to allow respondents to provide the most comprehensive answers. The survey included questions about the countries or regions in which respondents lived or worked, their organizational affiliations, length of experience, area of expertise, and about what they considered to be the greatest conservation needs. It was presented online, using Constant Contact. The questions are listed in Appendix A.

The draft questionnaire was sent to butterfly experts in North America, Europe, and South Asia for comments and suggestions. Feedback was received from Jaret Daniels, McGuire Center for Lepidoptera Research; Blanca Huertas, Natural History Museum; Owen Lewis, University of Oxford; Timothy New, La Trobe University; Michael Samways, University of Stellenbosch; Simon Stuart, Species Survival Commission of the International Union for Conservation of Nature (IUCN); John Shuey, Nature Conservancy; and Martin Warren, Butterfly Conservation. This advice was incorporated into the final questionnaire design.

We also asked reviewers to provide us with names and email contact information for individuals engaged in butterfly conservation. In March 2011, an invitation to participate was sent to the recommended butterfly researchers, specialists, and conservationists, and posted to the Foundations of Biodiversity, Leps-L, Pollinator, and BFCI listservs. Several reminder emails were sent over the following weeks. The questionnaire was posted on the Xerces Society website, which attracted a number of additional responses. The IUCN/SSC website also hosted a link to the survey. We reached additional experts by asking survey respondents to give contact information for other butterfly conservationists and to forward the invitation and survey URL to colleagues and contacts.

Since the survey was released, 166 people have responded. Five respondents submitted incomplete information, such as only their name. These have been excluded from this analysis.

Responses to the open-ended questions were coded and grouped into categories. For example, answers for current country such as United States, USA, US, and U.S.A were all coded as USA to obtain consistent results. These categories were tallied on how often the category was mentioned in the participants' responses and analyzed by percentages or response count.

Survey Results

The results of the survey provided contact information for globally active butterfly researchers and conservationists, home countries as well as countries where participants work, names of organizations and types of projects in which the participants are currently involved, and the major butterfly conservation needs and opportunities within the participants' regions.

Participant Background Information

The results provide a profile of butterfly researchers and conservationists who participated in the survey. The 161 participants who reported their current address live in 39 different countries. The greatest number were from the USA (37%), followed by the UK (9%), Brazil (7%), and Canada (4%) (Figure 1).

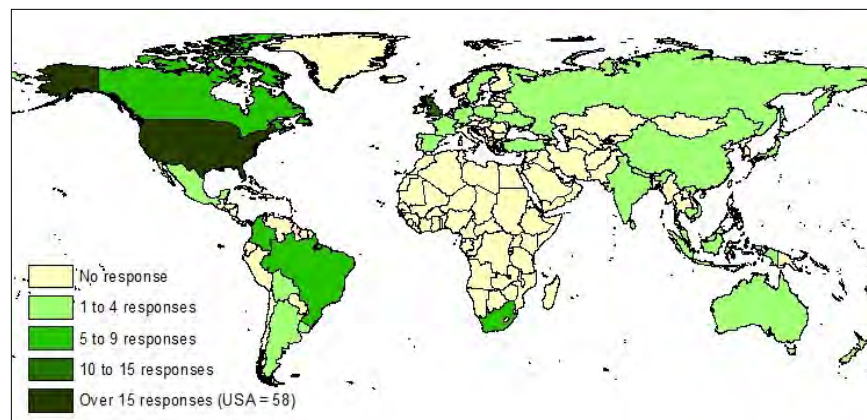


Figure 1. Home countries of respondents.

The greatest number of participants work as either professors (24%) or scientists/researchers (22%). Others identified themselves as non-governmental organization (NGO) presidents/executive directors (13%), NGO program directors/officers (13%), museum curators (6%), and graduate students (4%) (Figure 2).

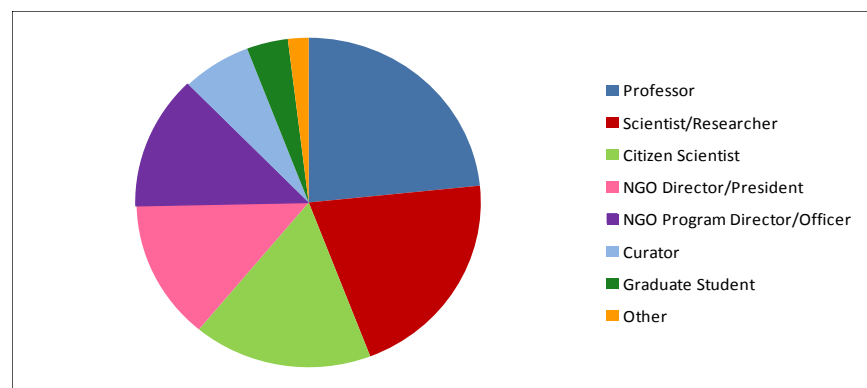


Figure 2. Employment categories of respondents.

The type of company or institution that the respondents are affiliated with includes universities (36%), NGOs (19%), museums/botanical gardens (13%), governmental agencies (8%), research centers (5%), and the private sector (3%) (Figure 3). Seventeen percent of the respondents were citizen scientists. Considering their employment position was not directly related to butterflies and most citizen scientists did not list their current employer, their type of company was not included.

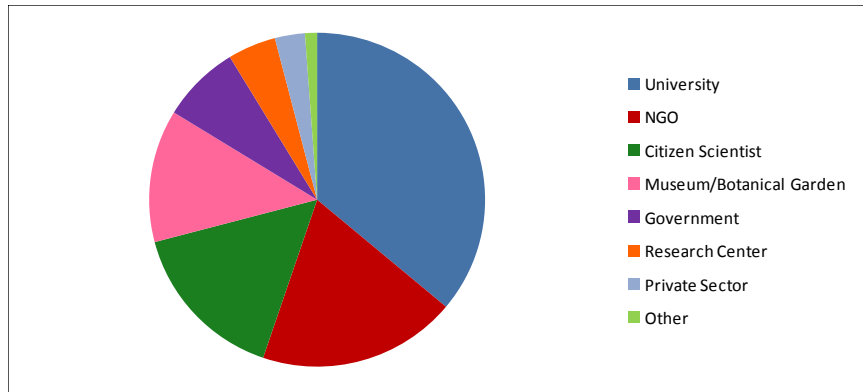


Figure 3. Organizational/Institutional affiliations of respondents.

The majority of participants identified themselves as lepidopterists, biologists, ecologists, educators, or conservation practitioners (Figure 4). Respondents were able to select all categories that applied.

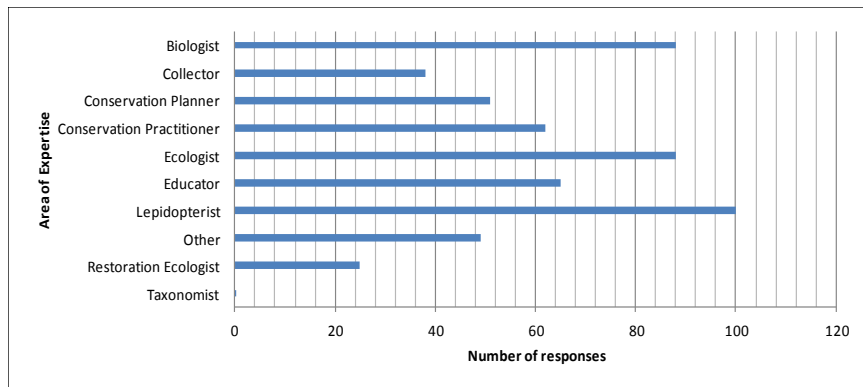


Figure 4. Area of expertise identified by respondents.

More than 40% of the participants have over 20 years experience in butterfly conservation, with a further quarter having between five and ten years of experience (Figure 5).

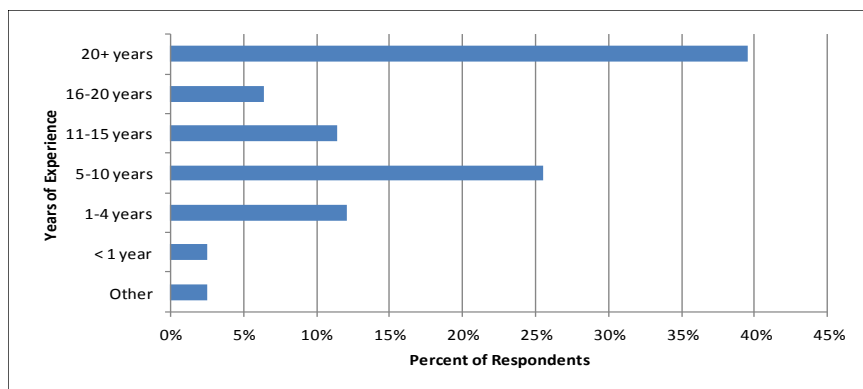


Figure 5. Years of butterfly experience of survey participants.

Country and Region of Activity

Several questions gathered information about respondents' current butterfly conservation work and what they considered to be the major conservation needs or opportunities in their region. These were both open-ended questions, resulting in a wide-range of answers. The information has been summarized in the next several paragraphs.

The participants reported conducting butterfly research or conservation projects in 92 different countries (Figure 6). Many participants reported working in multiple countries. The United States was the only country that more than fifteen respondents listed as a country in which they work, with 49 responses. Some participants only reported the region of the world where they work (e.g. Southeast Asia) and the countries that they work in could not be included in this analysis. Their information was included in an assessment of the regions where people work.

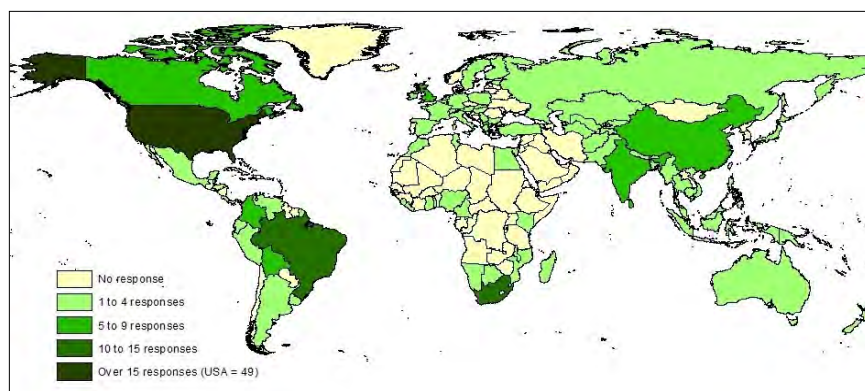


Figure 6. Countries in which respondents conduct butterfly research and conservation projects.

The greatest number of the butterfly conservationists who responded to the survey live and conduct butterfly-related work in North America (41% and 30%, respectively) (Figure 7). While 21% of respondents live in Europe, only 15% stated that they work on butterfly research and conservation in Europe. Conversely, 17% of respondents live in Latin America, while 23% work in Latin America; 14% of respondents live in Asia, while 19% work in Asia; and 4% of respondents live in Africa, while 9% work in Africa. This is most likely due to the high number of researchers and NGO staff members who live in North America or Europe but also (or only) work in Latin America, Asia, or Africa. About 4% of butterfly conservationists who responded to the survey live and work in the Pacific/Oceania and 1% report working on a global level.

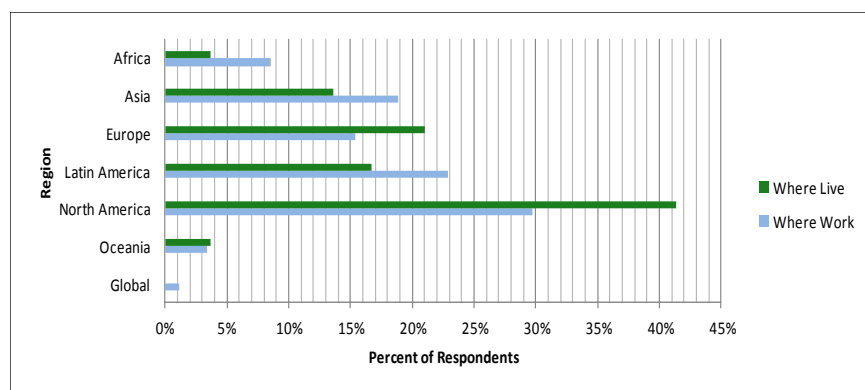


Figure 7. Regions of the world in which respondents live and conduct butterfly research and conservation.

Current Projects of Participants

Participants were asked to identify their current butterfly-related projects. This was an open-ended question to allow participants to identify multiple projects. As a result, the combined totals exceeded 100%. Numerous participants indicated that they are directing or assisting in butterfly or vegetation inventories, surveys, assessments, monitoring, or inventory databases (60%) (Figure 8). A similar number indicated that they are conducting research (58%). Nineteen percent of respondents are working on conservation planning (including the establishment of protected areas or preparation of environmental impact statements) and fourteen percent indicated that they are involved in on-the-ground conservation including land management and restoration. The remainder of responses was divided between environmental education and training (12%), butterfly taxonomy (7%), red listing of rare butterfly species with IUCN (6%), butterfly gardening (4%), reintroduction or relocation of rare butterfly species (2%), policy (2%), or economic activities related to butterflies (1%).

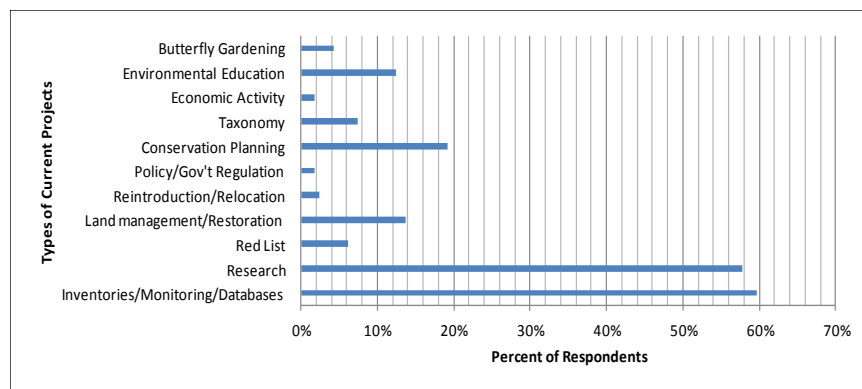


Figure 8. Categories of current projects being conducted by survey participants.

Needs Assessment

Butterfly survey participants were asked to identify the major butterfly conservation needs and opportunities within their region. Again, participants were allowed to identify multiple needs and as a consequence the combined results exceeded 100%. The number one response was habitat protection and management (60%). Responses in this category included protecting butterfly habitats that are not currently protected, appropriate management of areas that are currently within protected areas, increasing training for protected area staff members, creating conservation plans within protected areas, restoring degraded areas, restoring disturbance regimes across the landscape, creating or linking butterfly corridors, and appropriate management of right-of-ways. The second most frequently mentioned need (44%) was butterfly inventories and monitoring, including assessments, inventories, monitoring, and population database creation. Increased research was also reported as an important priority (36%). Participants expressed a need for increased research on butterfly populations including metapopulations and source populations; the effects of possible threats such as climate change, habitat fragmentation, agricultural practices, logging, suburban sprawl, illegal trade, and invasive species on butterfly populations; butterfly genetics; immature stages of butterflies; host plants; and butterfly migration. Many also emphasized the need for long-term research on a majority of the aforementioned research topics.

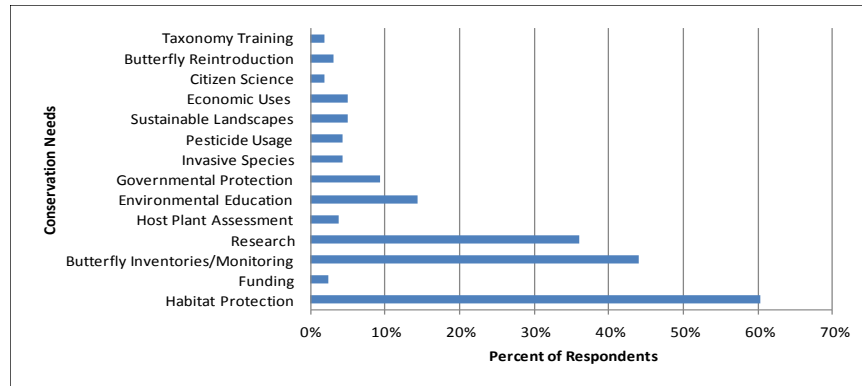


Figure 9. Conservation needs and issues identified by survey participants.

Eleven other needs were identified. Fourteen percent of respondents felt that increasing environmental education is a priority for butterfly conservation in their region. Another 9% reported the need for increased governmental protection and regulation of rare butterflies, raising awareness among governmental decision makers, and improving land use governmental legislation. Five percent of respondents expressed a need for implementing sustainable economic uses for butterflies (such as butterfly farming, working with farmers to protect pollinating butterflies, and carbon sequestration through forest conservation) as a means of protecting butterflies. The effects of pesticides, herbicides, and genetically modified species on butterfly populations was listed by another 5%, as was increased sustainable landscaping in urban areas. Invasive species that adversely affect butterflies and their host plants is a priority for 4% of those surveyed. Other needs or conservation issues included host plant surveys and assessments, funding for butterfly research or conservation programs, citizen science training, taxonomy training, reintroduction of rare butterflies to increase population size, networking of butterfly scientists and conservationists, and human overpopulation and consumption.

Region-specific needs

The majority of these needs and concerns were evenly expressed by butterfly specialists, independent of the region in which they worked. However, certain issues were considered more of a concern in some areas of the world than others. Over 90% of butterfly specialists working in Africa expressed habitat protection as the major conservation concern. Invasive species, pesticide usage, herbicide usage, and genetically modified species were only reported as a threat to butterfly populations by specialists who work in the Pacific/Oceania and North America. Environmental education was considered a higher need in the Pacific/Oceania and Asia than in other regions. All five survey participants who work in China stated the necessity for an increase in butterfly inventories and assessments. Although habitat protection was still considered to be a high conservation concern in Latin America (52%), the number one need was an increase in butterfly inventories and assessments (78%). This was especially true for butterfly conservationists and researchers in Brazil as thirteen of the fourteen respondents working in this country expressed this sentiment.

Conclusions

The goal of this report is to provide initial global information on current butterfly conservation projects and to start to understand the needs of butterfly conservationists and the animals they are working to conserve. The steering committee for the IUCN Butterfly Specialist Group will use this data to help determine steps that can be taken to assist with important butterfly conservation actions. The IUCN Butterfly Specialist group is also developing a listserv that will allow experts to share valuable information and to ask important questions. To join this listserv please send an email to butterflysg@xerces.org.

Appendix A

IUCN SSC Butterfly Specialist Group Assessment Survey

In fall 2010, Scott Hoffman Black, executive director of the Xerces Society for Invertebrate Conservation, was appointed as chair of the International Union for Conservation of Nature (IUCN) Species Survival Commission's (SSC) Butterfly Specialist Group. Scott will work to bring scientists and conservationists together to facilitate butterfly conservation projects worldwide.

As the first step, we are gathering information on current butterfly conservation projects, priorities, and needs, and about the individuals and organizations engaged in these efforts. We'd appreciate your help in better understanding what's being done and who is engaged in butterfly conservation across the world. Please complete this brief survey -it should take less than 10 minutes to complete. Any information you can give will be of great benefit in making the Butterfly Specialist Group a success.

Please pass this survey along to others whose work or experience may be applicable to this specialist group. We are especially interested in gathering information about butterfly conservation efforts in areas outside North America and Western Europe. It is not that the Specialist Group will be ignoring the needs of these regions but that these are areas in which there are well-established and successful conservation organizations. The initial aim of the Specialist Group is to prioritize work in countries and regions traditionally underserved by butterfly conservation organizations, so that meaningful progress can be made without duplicating the efforts of others.

The survey is in English. If this is not your first language, we hope that you will still be able to adequately understand and complete the survey and that language will not be a barrier to your participation. Unfortunately, the Specialist Group doesn't currently have the capacity to present and analyze the survey in other languages.

1. Please enter your name and contact information. We will use this to remain in contact concerning the IUCN Butterfly Specialist Group
2. Job Title
3. Organization
4. Mailing Address
5. Please describe your area of expertise. Select all that Apply
 - a. Biologist
 - b. Conservation Planner
 - c. Conservation Practitioner
 - d. Collector
 - e. Ecologist
 - f. Educator
 - g. Lepidopterist
 - h. Restoration Ecologist
 - i. Taxonomist
 - j. Other

6. How long have you been involved with butterfly conservation?

- a. <1 year
- b. 1-4 years
- c. 5-10 years
- d. 11-15 years
- e. 16-20 years
- f. 20+ years
- g. Other

7. Are you actively involved in any conservation organizations? Please list the organizations(s) and your specific role within the organization(s) (e.g., Xerces Society – ecological studies of at-risk butterflies in the Western United States).

8. Please identify the country or countries in which your work takes place and briefly describe the work (e.g. Brazil – butterfly response to grazing). Work can be amateur or professional, and include status surveys, ecological studies, species conservation programs, practical field management, data analysis and modeling, etc.

9. What do you identify as the major butterfly conservation needs and opportunities in your region? Please identify the countries and the projects or issues (e.g. Turkey’s Kaçkar Mountains – butterfly status assessment).

10. Do you know of anyone working on butterfly conservation projects or who you would consider to be an expert in butterfly conservation?

11. Would you like to be kept informed about the IUCN Butterfly Specialist Group activities through email?



Colobura dirce photographed in Ecuador by Carly Voight.

Cover photographs feature Apollo (*Parnassius apollo*) ranges from Europe to Asia, photographed by AngieSharp/iStockphoto.com; *Heliconius numata tarapotensis* photographed in Ecuador by Carly Voight; Little tiger blue (*Tarucus balcanicus*) ranges from North Africa and southern Europe and east to India, photographed by Evrim Karaçetin; and Ogasawara blue (*Celastrina ogasawaraensis*) endemic to Ogasawara Islands, photographed by Yasuhiro Nakamura.