B. rufofasciatus in Qinghai, Paul Williams

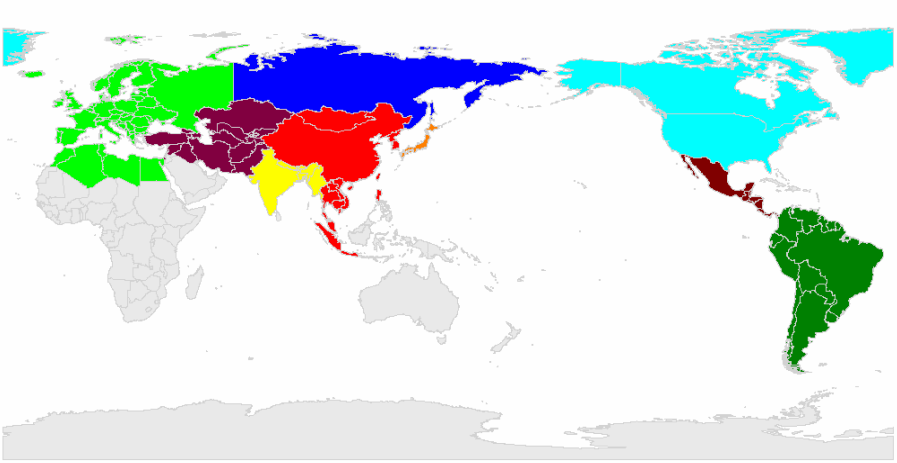
Bumblebee Specialist Group Report 2012

Edited by Paul Williams, Chair, and Sarina Jepsen, Deputy Chair

BBSG IN 2012

This is the first report of the BBSG's activities, aimed at sharing a brief overview of the achievements of the regional groups during 2012. After the original proposal for the BBSG at the end of 2010, 2011 was taken up largely with organising and inviting members.

During 2012 we launched our BBSG web pages on the IUCN site (iucn.org/bumblebees), thanks to Sarina. These pages include who we are, instructions on Red Listing procedures, and provisional regional lists of bumblebee species. This year we also started to make real progress towards preliminary assessments in many parts of the world. It is extremely encouraging to see such strong progress in many regions (listed below alphabetically), especially when we consider the voluntary nature of this work.



BBSG regions

EAST ASIA

Dr An Jiandong / Dr Paul Williams

About half of the bumblebee species of the world occur in China (124 species), where the taxonomic framework has until recently been especially sketchy compared to other parts of the world. Over the last few years, the Bumblebees of China project has been developing a collection of more than 30,000 specimens, all of which have GPS data, are identified to species, carry individual identifier numbers and are individually databased.

In 2012, 6014 bumblebees were added, collected mostly from the north and west of China. These were sorted by Huang Jiaxing and then checked or identified by Paul Williams. They include 77 species, with 1507 specimens from Xinjiang, 415 from Gansu, 398 from Heilongjiang, 2 from Jilin, 384 from Neimenggu (Inner Mongolia), 1542 from Ningxia, 603 from Qinghai, 101 from Sichuan, and 1062 from Xizang (Tibet). Work is in progress on a paper to describe the fauna of North China (8 provinces) with maps, as a first step towards regional assessments for 79 of the species of China.

EUROPE

Prof. Pierre Rasmont / Stuart Roberts

The European Region group has completed preliminary assessments for the European parts of the ranges of all 68 of the species that occur within the region. All of the species have been mapped, based on 800,000 data gathered from all of the region's countries. These data are available as maps on the website of the Atlas Hymenoptera (www.zoologie.umh.ac.be/hymenoptera/page.asp?id=169). As part of the assessment process, the group held a meeting of specialists in Brussels in August 2012, to examine carefully all of the available information for the European species (excluding the Caucasus).

HIMALAYA

Prof. Malkiat Saini

The Himalayan Region group has made an outline preliminary assessment from data available in India, including the results of recent field work. This region has a rich fauna

but terrain that makes it especially difficult to survey. Many data exist in collections elsewhere in the world, which urgently need to be digitised for use in these assessments.

JAPAN

Dr Koichi Goka

In Japan, people have used the European bumblebee *Bombus terrestris* as a pollinator of tomatoes in greenhouses for over 20 years. Although the bees have made a great contribution to tomato production, their naturalization and expansion of their distribution have caused serious ecological impacts for the native bumblebees, especially on Hokkaido Island, the northern island of Japan.

In 2006, the Ministry of the Environment started the regulation procedure against *B. terrestris* and restricted its use to green houses covered entirely with nets to prevent escape of the bees. This restriction in the use of the alien bees is considered to have decreased its invasive pressure. However, the populations already naturalized have never decreased and have continued to expand in distribution, resulting in the invasion of even Shiretoko Peninsula, a natural area of World Welfare.

It is an urgent objective to develop control methods against naturalized populations of the alien bumblebees. Until now, the Hokkaido Government has called for volunteers and has tried to control the alien bumblebees by catching them. However, the trial has never achieved the desired success because of the bees' high intrinsic rate of increase.

We at the National Institute for Environmental Studies are developing a new method and strategy for the eradication of the naturalized European bumblebee populations using IGR (Insect Growth Regulation) insecticides.

MESOAMERICA

Dr Remy Vandame

The Mesoamerican Region group started its activities with a workshop / course: 'Conservation status and health risks of the genus *Bombus* bumblebees native to Mexico' in February 2012. The people at the workshop were all members of the BBSG, experts on commercial management, public policy stakeholders, together with Prof. Sydney Cameron and Prof. Michael Otterstatter, as international researchers. The conservation and management priorities for bumblebee species native to Mexico and Guatemala were established collectively.

An important product of this meeting was to define the goals and objectives of a *Bombus* project at the scale of the whole of Mexico, to assess the conservation status of native bumblebees, focused on determining the distribution, health status and genetic diversity of populations of bumblebees. The project is a collaborative effort of several institutions, including ECOSUR (El Colegio de la Frontera Sur), UNAM (Universidad Nacional Autónoma de México), UADY (Universidad Autónoma de Yucatán), UDLAP (Universidad de las Américas Puebla), and supported by CONABIO (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad) for two years.

A key step to start the project was to establish a multipurpose sampling protocol, defined by consulting experts on pathology, genetics, and taxonomy. The sampling addresses

three main objectives: the sampling of three common pathogens of bumblebees; measuring population genetic diversity; and mapping species distributions.

From September to December, the first period of fieldwork sampled the southern states of Mexico, which permitted the collection of more than 4000 specimens. In parallel, training courses on Red List procedures were received from Nieves Garcia (IUCN).

For 2013, we aim to sample Guatemala, and the Central and Northern states of Mexico, as well as to start the Red Listing evaluation for all of the endemic species of the region.

NORTH AMERICA

Prof. Robbin Thorp / Dr Sheila Colla / Sarina Jepsen

The North American Region group has completed an analysis of changes in Extent of Occupancy, Area of Occupancy, and Relative Abundance for 29 bumblebee species in western North America, using a database compiled from multiple existing data sets. We have applied the IUCN Criteria (version 3.1) to each of those species and have placed each species in a Red List Category (such as Critically Endangered, Endangered, etc.). Next, we will compile the background information, such as taxonomy, habitat use, and ecology, for each of the species to complete the assessments. The next step (in 2013) will be to complete a similar analysis using the same database for the remaining species of bumblebees that occur in eastern North America. The results of that analysis, in concert with existing published data on the status of eastern North American bumblebees, will inform the eastern North American bumblebee assessments.

NORTH ASIA

Alexandr Byvaltsev

The North Asian Region group has been proceeding with the following tasks:

1) mapping species ranges in Russia (planned for completion at the end of 2013);

2) creating a website dedicated to the bumblebees of Russia (planned for completion at the end of 2013);

3) studying genetic polymorphism within populations of some species of the West Siberian Plain (continuing research);

4) assessing populations using the IUCN categories and criteria. We now have data for the North-West Caucasus, the European North of Russia, forest-steppe and steppe zones of the West Siberian Plain, and the Vologda region and the Kuznetsk-Salair mountain area. We are now waiting for data from the Far East of Russia and from the Taiga of the Middle Ob Lowland.

SOUTH AMERICA

Dra Carolina Morales

The South American Region group was formed in late August 2012, after 16 potential candidates with the knowledge, expertise and commitment to bumblebees conservation were identified and contacted. The primary aim of the group is to complete the status assessment for the bumblebee fauna of our region (for the Red Listing process). The

South American group is composed of 12 volunteer members from four different countries.

In early October 2012, we were introduced to Nieves García, Programme Officer of the IUCN Global Species Programme, working at the Biodiversity Assessment Unit, a shared initiative between IUCN and Conservation International. She approached the BBSG with an offer to help start the process of assessing the risk of extinction of bumblebee species. She brought her previous experience in applying the IUCN Red List Criteria to assess the conservation status of other invertebrates to support a similar process for the South American bumblebee fauna. Her support specifically consisted in: 1) providing a Red Listing remote training session to introduce us the red list criteria and categories of the IUCN and 2) beginning to compile existing data for all of the 24 bumblebee species inhabiting our region (according to the species list on the BBSG website), working close together with the members of the group.

For this process of assessment we started by identifying among the members of the group a volunteer 'leader' and 'collaborators' for each one of the 24 bumblebee species in the region. Each member was asked to volunteer to lead or collaborate in the assessment of one or more species, for which he or she had relevant information or previous knowledge to share. In this way, 16 species were assigned to three volunteer leaders, who committed to identify and compile in collaboration with the volunteer collaborators relevant sources of information (published papers, unpublished reports, databases of specimens, if available, and personal records, etc.) and to start to fill the draft Red List assessment data sheet for the given species. The compilation of the remaining eight species lacking a volunteer leader was assigned to Dra Yamila Sassal. She is not member of the BBSG, but has previous valuable experience both with bumblebee ecology and with database and online searches. Her job will consist of compiling the information for these eight species and she will work closely with Nieves.

In summary, we received online training for Red Listing from Nieves in early November and we then started assessments for all of the 24 bumblebee species of the South American Region. We expect to complete the process for a third of the species during 2013.

No update has been received yet for the West Asian region.

BBSG 2013 ONWARDS

The progress during 2012 is a great start, with substantial results from our first real year of activity. Please contact me if you have any suggestions for how you think we can improve progress in achieving our goals of Red List assessments of all bumblebee species world-wide. As you know, understanding the threat status of each species is the first step to prioritising conservation actions.

It would help some of us very much if we could stimulate even more exchange of expertise, not only within regional groups, but also between them. We would like to encourage communication via the group email using our listserv (send an email to: iucn-bumblebee@googlegroups.com) or via any other medium. There are still a few members who have not joined the listserv, so please email sarina@xerces.org if you need to join.

The priorities for the coming year will be to research member needs across the BBSG with regard to Red List assessment training and meetings, to make progress where necessary with regional surveys and databases (where possible we should begin by using existing data to the full), and then to apply the IUCN criteria to determine the threat status of individual species and to write preliminary Red List species assessments within regions.

In 2013 we can look forward to establishing clear leadership for all species regionally and compiling preliminary information regionally at least. Once regional preliminary assessments are drafted, we can begin to move towards globally integrated Red List assessments for each species. That will put us in a very strong position to identify global priorities for future research and conservation. Exciting times!

London 17 January 2013