

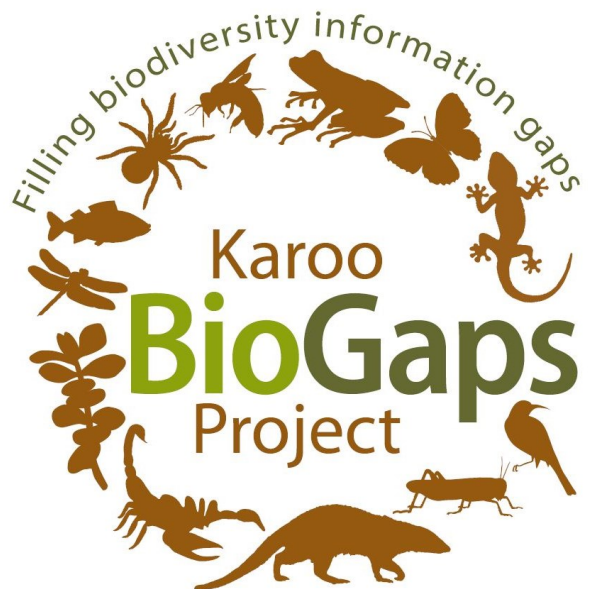
Karoo BioGaps Project

Mid-project report on fieldwork, July 2017

The Karoo BioGaps Project aims to assemble foundational biodiversity data by integrating current fieldwork data with historical data found in South Africa's museums and herbaria. The consolidated data will support decision-making about infrastructure developments in the Karoo basin.

For more info on the project: www.sanbi.org/biogaps

The response of Karoo landowners and farmers has been overwhelmingly supportive of our project, and we would like to express sincere thanks to everyone who has shown so much interest in the work that we are doing.



Since the project launch in early 2016, research teams for the Karoo BioGaps Project have been making steady progress with gathering data on the distribution and occurrence of biodiversity across the Karoo, visiting many areas where there have been few or no previous formal studies of local fauna and flora.

At the outset, the project encompassed formal surveys for ten animal groups and plants in sixty sites (Pentads) representing different habitat types across the Greater Karoo area. Additional engagement with the Citizen Science programmes of iSpot and the UCT's Animal Demography Unit (ADU) Virtual Museums and the Bird Atlas Project SABAP2 added further scope for collecting data for biodiversity occurrence. As the project developed, a collaboration with BirdLife South Africa also emerged, resulting in birds now being included as an eleventh animal taxon.

The scope of the project involves surveys of 30 compulsory Pentads to be undertaken by all groups, 20 additional Pentads to be surveyed by as many groups as possible and ten extra Pentads for plant surveys only. However the extremely dry conditions and time constraints for many of the teams means that there may not be enough opportunities for surveys of the non-compulsory Pentads within the limited timeframe of the project. As a result, protocols were developed for iSpot BioBlitzes of the non-compulsory Pentads. The protocols focus on Citizen Scientists photographing plants and posting them on iSpot, together with any other non-target observations made during the surveys.



Looking for scorpions and reptiles hiding under the rocks during the "Bioblitz" field trip for the launch of the project



Specimens being processed after a "Bioblitz" field trip to the farm Rooiheuvel for the launch of the Karoo BioGaps Project in April 2016 at the Lord Milner Hotel.

Despite climatic conditions not being ideal for gathering comprehensive data on account of poor rainfall being recorded in many areas in 2016 and 2017, some very exciting discoveries have been made so far! We also look forward to further new finds as collected material is analysed and identifications are made. Due to the fact that the process for all the collected material to be analysed for identification purposes can take many months, complete lists of what has been recorded will only be available at the conclusion of the project, and each party involved with the project will receive data relevant to their area.



Grasshoppers

Team Orthoptera (Grasshoppers) have sampled all of the 30 compulsory pentads and collected over 1,600 specimens, of which preliminary results indicate 15 species new to science, as well as a new genus.

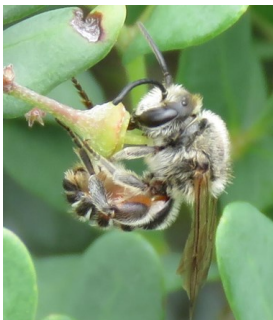
Team Orthoptera get a lot of exercise to capture their specimens using nets!



A new genus of grasshopper was collected and is still to be named

Bees

Team Bees have undertaken two field trips visiting 17 Pentads. Thus far results are disappointing, with somewhat better collections in the Eastern Cape areas where reasonable rainfall had occurred, while the Western area was regrettably devoid of bees due to the severely dry conditions being experienced.



A bee spotted during one of the BioBlitz surveys

Reptiles and amphibians

Team "Herpetiles" (reptiles and amphibians) have visited half of the compulsory sites to date and compiled 720 records of individuals. They have collected 13 different species of frogs and 60 species of reptiles.



Team Herpetiles using funnel traps to capture a Cape Cobra

One of the highlights was this Coral Snake (*Aspidelaps lubricus*)



Armadillo Girdled Lizard

Mammals



Evidence that Team Mammals has been in the area!



Black-footed cat kitten approx. 7 weeks old, photographed by Team Mammals

Round-eared Elephant Shrew



Team Mammals have been to 16 of the compulsory sites, setting camera traps for larger animals and Sherman traps to record small mammals in an area. So far 36 medium to large mammal species have been recorded, with ten species of small mammals being identified using baited Sherman traps. Analysis of mammal records is ongoing as data from camera traps are analysed.

Spiders

Team Spiders have visited 15 of the compulsory sites thus far, with successful training of staff and students in the process. Collected samples are being processed, with early results indicating at least one new species, and new distribution records for another rare species in the Eastern Cape.



Team Spider digging pitfall traps



One of the specials for Team Spider
Harpactira spp



Most of the work goes on behind the scenes after fieldwork is completed, when collected specimens are identified in the laboratory

Scorpions

Team Scorpions have undertaken a field trip in February, over the “dark” phases of the moon (between third quarter and first quarter) as this is the period scorpions are most easily detected using UV torches from sunset until about 2am. During the day the team search for scorpions by rolling rocks and excavating burrows. Highlights of the scorpions team from the 11 Pentads visited is the possible discovery of a new species, and a range extension of another.



Hadogenes rock scorpion



Digging at a scorpion burrow

Freshwater Fish

Team Freshwater Fish have sampled a total of 76 sites in rivers draining the Karoo area. The Cape Fold Ecoregion is a hotspot for endemic freshwater fishes.



Eastern Cape Rocky, *Sandelia bainsii*, showing the species' live colour pattern

Butterflies

Team Butterflies have made good progress, with 34 Pentads visited and 370 species records made, however the drought conditions in many areas has been a challenge to good representative sampling.

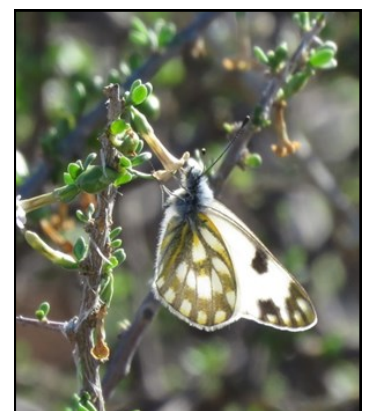


Team Butterflies on the hunt

Bowkers Sapphire spotted during one of the BioBlitz surveys



Meadow White spotted during one of the BioBlitz surveys

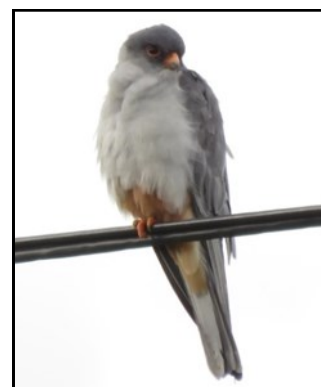


Birds

Team Birds have surveyed 13 of the Pentads and done about 300 point counts. To date it would appear arid zone birds are faring well when comparing SABAP2 data with SABAP1 records. The most commonly recorded species are Karoo Scrub-robin, Rufous-eared warbler, Lark-like bunting, and Red-eyed Bulbul.



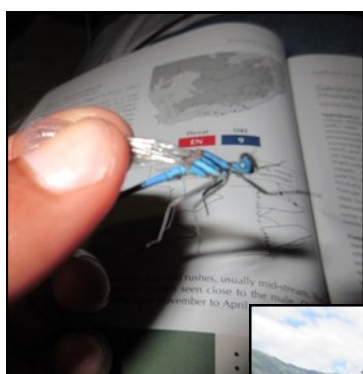
Karoo Chat



Amur Falcon spotted during one of the BioBlitz surveys

Dragonflies

Team Dragonflies sampled ten of the river systems draining the Karoo with success, including collecting the endemic Kubusi streamjack in three of the systems.



The endangered Kubusi streamjack (*Metacnemis valida*)



Catching dragonflies requires a lot of energy!

Team BioGaps BioBlitz is a new initiative with the aim of visiting all the non-essential Pentads and doing photographic plant surveys according to set protocols recording track and timing of observations which are then posted on iSpot for identification. Animal observations made during these surveys are also posted, adding to the overall biodiversity record. Thus far, this group has undertaken two field trips to 11 non-essential Pentads, and facilitated two iSpot workshops in the Eastern Cape area.

Taking photos usually requires getting up close and personal with plants on the ground!



Contact Gigi Laidler for more info: g.laidler@sanbi.org.za

Plants

Team Plants have visited 22 of the compulsory Pentads, 7 non-essential, and 3 of the plants only Pentads. The team has collected 3,399 species records and 1,505 specimens.



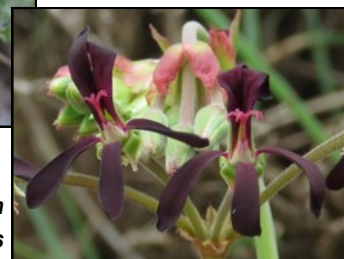
Plant specimens being processed

Crassula corallina



Monsonia

Pelargonium sidoides



You too can be a BioGaps BioBlitzer! Take photos of as many identifiable plants as possible within a prescribed area for a prescribed period of time, and post these observations on iSpot to be identified by experts. Use this link to the project on iSpot: <http://www.ispotnature.org/projects/karoo-biogaps> Any record of any species in the Karoo is useful to us, particularly those in the 12 taxonomic groups. By posting your picture of a species with its location information onto iSpot, you will be adding to the knowledge about the distribution range of that species.