

## BRENTON BLUE NEWS – NOVEMBER 2017

Welcome all friends and neighbours of the Brenton Blue butterfly (*Orachrysops niobe*) to your latest newsletter! You can obtain more detailed information about *niobe* (see note below) on the Brenton Blue Trust website [www.brentonbluetrust.co.za](http://www.brentonbluetrust.co.za).

### Research progress following the 7<sup>th</sup> June 2017 fire

#### Introduction

The Knysna fire of 7<sup>th</sup> June 2017 was probably the most intense and widespread fire in the southern Cape since the famous 1869 fire. It swept from west to east along the Brenton peninsula, propelled by a gale force westerly wind (gusting to over 100km/h) burning almost everything in its path until it eventually reached the Brenton Blue Butterfly Reserve (BBBR), and both the original reserve (1.6 ha) and the expansion sections (13.5 ha) were severely burnt. The impact of such a fire on a butterfly such as *niobe* is unknown. Consequently the aftermath of this fire represents an opportunity to do some extremely important research into the potential recovery of this species and its habitat.

#### Aims and objectives of the research

The overall aim is to monitor the post-fire recovery of the ecosystem at the BBBR, mainly focusing on the status of the critical ecological factors needed for *niobe* to survive (host plants, host ants, candlewood trees, nectar plants, vegetation communities, microclimate) and compare that with pre-fire ecosystem as recorded by Edge in 2005. The research objectives therefore include:

1. Recording the recovery of the vegetation communities and compare with the pre-fire data.
2. Quantify the regrowth of *niobe*'s host plant *I. erecta* and relate host plant abundance to butterfly fertility by counting eggs laid.
3. Inspect the fire damage to the candlewood trees and record the timing and manner of their recovery.
4. Monitor the abundance/activity of *niobe*'s host ant *C. baynei* and relate that to butterfly abundance. Record the other ant species present as well as any other relevant ground-dwelling invertebrates.
5. Maintain a close watch during *niobe*'s normal emergence period at the original reserve to see if any *niobe* emerge, and whether the females are able to mate and lay eggs. Estimate the size of the butterfly population and observe its behaviour in the post-fire environment.

#### Results of research so far

##### Vegetation

The first phase of the recovery of the vegetation in the reserve has been encouraging, and ground cover is already such that little erosion has been experienced. Our botanical research team led by Tineke Kraaij (NMU) included Naomi and Elrina Juyn of Brenton. The earliest plant species to emerge have been:

Bracken fern (*Pteridium aquilinum*) – dominant in some areas.

Sedges (genus *Ficinia*) and grasses (a number of species).  
Geophytes such as *Hypoxis villosa* (African potato), *Bobartia* (Blombiesie), *Kniphofia* (red-hot poker), *Watsonia* and *Aristea*.

*Osteospermum monilifera* (Bitou) seedlings (prolific!).

Re-sprouting shrubs and trees such as *Tarchonanthus* (camphorwood), *Halleria lucida* (tree fuschia), *Leucadendron* (geelbos), *Protea cynaroides* (King protea), several *Searsia* species (taaibos), and *Asparagus* (haakdoring).



*Hypoxis villosa* Hanna du Toit

Herbs such as *Nemesia* (leeubekkie), *Geranium incanum* (carpet geranium), *Indigofera erecta*, *Hebenstretia* (cat-tail) and *Arctotheca calendula* (botterblom).

#### Host plants (*Indigofera erecta*)

Naomi and Elrina have been monitoring these plants and they have recovered very quickly, both as re-sprouters (from underground rootstocks) or as seedlings (about 20% so far). Nearly 600 plants have been numbered with white flags on sticks and their growth is regularly monitored. Prolific flowering has taken place and many of the plants already have well developed legume pods from which seeds will be released early next year.



*Indigofera erecta* flowering Hanna du Toit



*Indigofera erecta* flags Hanna du Toit

Consequently there will be no shortage of food for the larvae of *niobe*, who feed on the leaves during their first two stages, and later on the rootstock.

#### Nectar plants

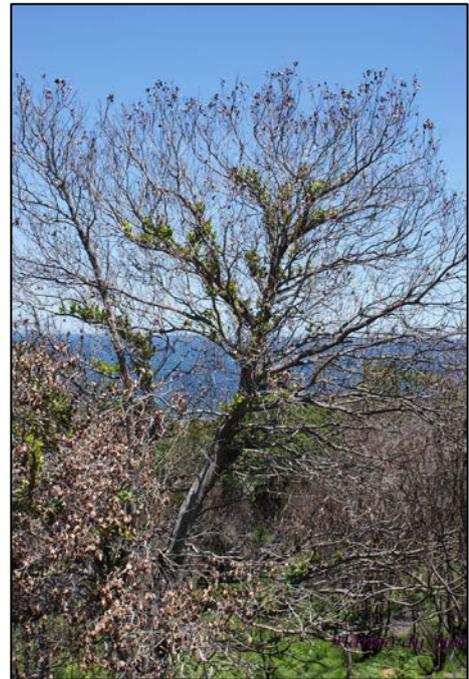
The herbs mentioned above are all good nectar plants for *niobe*, and in addition many *Selago glomerata* dwarf shrubs are flowering – another favourite nectar plant.

#### Candlewood trees

The botanical team has noted that the degree of fire damage to the candlewoods varies from the higher parts of the reserve (most severe) to the lower parts (some trees hardly damaged). The majority of the candlewoods have lost all their leaves, but about 20% of these trees are now re-sprouting new leaves in the canopy, which is promising. Some of the trees which suffered more severe damage have begun re-sprouting from the base. The recovery of these trees will have important consequences for restoration of a suitable microclimate for *niobe* and its host ant at the BBR.

#### Ants

Melanie De Morney is our ant expert, and she has collected ant samples have been collected in pitfall traps (small beakers containing preservative sunk into the ground so the top is level with the surface) during July and October. So far the host ant *Camponotus baynei* has not been found, although another sugar ant *Camponotus niveosetosus* has been detected. A more selective sampling method will be used in the areas with the most host plants – baiting with a sugar solution – and this should allow more targeted sampling of the *Camponotus* during December and January.



Candlewood re-sprouting from canopy  
Hanna du Toit

## Butterflies

Dave Edge and Hanna du Toit began to look for *niobe* butterflies in the last week of October, when they sometimes emerge, but not this year. Into November they were looking every few days whenever the weather was suitable (fine and warm with no wind) but such days were few and far between. By the middle of the month not one had been seen and they were beginning to fear the worst. Maybe all the caterpillars had been killed by the intense heat of the fire – the botanists were saying that the humus layer had burnt completely in some places and this could have destroyed the seeds in the seed bank. As far as is known the caterpillars are at least 150mm below the ground – but was this enough? Also there was a possibility that the rootstocks of the *I. erecta* could have burnt, but fortunately by late August the first re-sprouters had been seen, indicating that many rootstocks had survived. So the absence of *niobe* was puzzling and concerning although hardly any other butterflies were seen. They searched on the 19<sup>th</sup> November in perfect weather conditions but without success. Conditions were again good on the 24<sup>th</sup> November and they did our usual search, for the first time seeing *Cacyreus fracta* (Water Bronze), looking at first glance like a *niobe*. They were almost done when just before 1 o'clock a smallish butterfly was seen behaving like a *fracta* but settling with its wings closed (*fracta* normally has its wings half open to catch the sun). Dave crawled closer to get a better look and when he drew level he could see the underside – undoubtedly *niobe* with its black spots on a grey background, and no tails! *C. fracta* has an intricate pattern on its underside and a short tail on each hindwing. The *niobe* flew away before it could be photographed, but later at 13.20 Hanna saw it again about 30m away, crawling on a low *Indigofera erecta* plant and she was able to get a photo. When she called Dave over he was able to confirm it was a *niobe* female, although quite badly worn, with pieces broken away from its hindwings – typical damage on butterflies indicating a predator attack (probably a bird). Searching the plant it had originally been on he found two freshly laid eggs (pale blue in colour – they go white within a day), and on another nearby *erecta* two more eggs. They were naturally very excited by the find and searched for more adults, but without success. The next day (25<sup>th</sup>) the weather was again fine and they set out with high hopes of seeing more *niobe* but were disappointed when none could be found, despite searching the whole reserve. However, on the 28<sup>th</sup> we had more luck and saw two males and the same female.



*Orachrysops niobe* female – Hanna du Toit



*Orachrysops niobe* ovum – Dave Edge

The butterfly team (also including Christa Le Roux of Brenton) will keep on searching and they hope to find some more *niobe* adults or their eggs.

Note: The scientific name of the Brenton Blue “*niobe*” comes from Niobe, one of the most tragic figures in Greek mythology. Her seven sons and seven daughters were killed by the gods Apollo and Artemis, and she was turned to stone. From this rock it is said that a ceaseless stream of her tears has flowed ever since. Let us hope that we do not have to shed tears over our “*niobe*” and that she is made of sterner stuff!

27<sup>th</sup> November 2017