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Aylosteria deminuta

Echeveria brachetii

Parodia rechensis

Little Florida Mountains

Succulent Ant Plants

THE LAST POPULATIONS OF *PARODIA RECHENSIS* (BUINING) F. H. BRANDT

Giovanna Anceschi & Alberto Magli report on their search for plants of *Parodia rechensis* in habitat. The plant, which is better known as *Notocactus rechensis*, is difficult to keep in cultivation and its future in nature is also in doubt.

Photo: Anceschi & Magli



Fig.1 *Parodia rechensis*. Brazil, Rio Grande do Sul, Caxias do Sul, Ana Rech, 16 Nov 2011, AM 821

We spent October and November 2011 in the state of Rio Grande do Sul (Brazil) amongst the 'gauchos', who are wonderful people, dedicating ourselves to the study of different cactus populations that make up 17 of the taxa of the genus *Parodia* Spegazzini.

This article is about a part of the journey last year when we worked in South America between mid-February and the end of December, studying and documenting in the field, about 130 taxa of the Cactaceae at a species level (the forthcoming publication of these materials on our site cactusinhabitat.org and a related booklet are planned for the beginning of 2013).

In mid-November we were in São Gabriel, a town in the Pampas area in the centre west of the state, we rested and then moved on after we had conducted a series of surveys in the district of Santana do Livramento (also in the Pampa Biome) in the extreme central south of the Rio Grande, just on the border with Uruguay.

Here we studied populations of *Parodia allosiphon* (Marchesi) N.P. Taylor, *Parodia nothorauschi* D.R. Hunt and *Parodia tenuicylindrica* (F. Ritter) D.R. Hunt; and we were really satisfied after having found *P. nothorauschi*, a very scarce taxon in habitat.

The next destination was Caxias do Sul, in the Mata Atlantica zone, in the northeast of the



Fig.2 Habitat of *Parodia rechensis* and *Parodia linkii*. View from the margins of Represa do Faxinal, Ana Rech (Celli Marchett 2008, 64: ANEXO XII, Fig.F.)

state, in order to get to the Ana Rech district, where we would start the research of *Parodia rechensis* (Buining) F.H. Brandt (Fig.1).

We had very little information about the taxon location, i.e. information about the discovery of the type: BR, Rio Grande do Sul, nr Ana Rech, 10 Feb 1967, Büneker et al. s.n. (U). (Hunt et al. 2006: 223) and the field number HU 98: *Notocactus rechensis*, Ana Rech to Caxias, Rio Grande do Sul, Brazil, 10 Feb 1967 (according to [Ralph Martin's field number search](#)).

We also had two other pieces of information about the conservation status, neither of which were promising about the health of the taxon. The first, Gerloff et al. (1995: 135), indicated that *P. rechensis* had been eradicated by intensive grazing; while the second, contained in a *Schumannia* special issue dedicated to Brazilian cacti and succulents, Braun & Esteves (2001: 48), see Gerloff (1998), included *P. rechensis* in the list of extinct or near extinction taxa in the wild.

Upon arriving in Ana Rech, we inevitably noticed that between Caxias city centre and the district the area is completely built up. Since 1967, urbanization and industrialization have invalidated the HU 98 information. Today, between Ana Rech and Caxias, there is only a continuous settlement, without traces of natural elements.

Through intuition and a bit of luck, we found our way to the headquarters of the cultural association SAMAR (Sociedade Amigos de Ana Rech), where we thought we might get some



Fig.3 *Parodia rechensis*. Ana Rech, Reprensa do Faxinal, 3 Nov 2009

information about the territory.

As always in the Rio Grande, the people we met on this occasion (Adriana Guazzelli and Ilea Camassola) were fantastic, and with the support of the Subprefeito Helio Dall'Alba, we were immediately put in touch with Valmor Bertin, the Ana Rech green areas technician, and with Professor Ronaldo Adelfo Wasum, of the Jardim Botânico de Caxias do Sul - JBCS.

The day after, accompanied by Valmor to the JBCS, we met Professor Ronaldo, whom we briefed about our research on *P. rechensis*, and explained that our only objectives were to study, document and preserve plants, and we believed that this did not require the collection of any living material from its habitat. We were more than happy to be accompanied by those responsible when the plants are living in protected areas, are very rare, or both; and finally that the results of our investigations will be made freely available to the scientific community and to all enthusiasts through our website and booklet.

For further details about conservation and our contributions to this delicate and constantly evolving subject, please refer to the booklet South America 2005/2010 (Anceschi & Magli 2010, 35 – 41), downloadable from here.

Professor Ronaldo, who is overseeing the project "Salvando os Cactos", of JBCS and Universidade de Caxias do Sul, put us in touch with his former student, Franco Celli Marchett, because he knew where the populations of *P. rechensis* live, having studied them for his thesis A Família Cactaceae Juss. no Município de Caxias do Sul, RS, Brasil (2008), which is also

Photo: Anceschi & Magli



Fig.4 *Parodia linkii*. Ana Rech, 16 Nov 2011, AM 822



Fig.6 *Parodia rechensis*. Ana Rech, 16 Nov 2011, AM 821

Photo: Anceschi & Magli

Photo: Anceschi & Magli



Fig.5 *Parodia rechensis*. Ana Rech, 16 Nov 2011, AM 821



Fig.7 *Parodia rechensis*. Ana Rech, 16 Nov 2011, AM 821

Photo: Anceschi & Magli

part of this project.

The meeting with Franco was crucial for our work (and also very important at a personal level): despite our training in searching for cacti, we would never have found the taxon without him. He told us that there were only two surviving populations of *P. rechensis* living in the Ana Rech territory, and since we had decided to devote our efforts to the larger population, which was located on a private fazenda, he provided us with detailed information on the smaller one.

At the time of the survey for his thesis (10 Sep 2008), the minor population was composed of about 40 individuals living on a rocky outcrop at the edge of the forest (mixed Ombrofila forest) and which are (or were), near the Represa do Faxinal in the Parque Ecológico do Faxinal (Fig.2). All this information is published in his thesis (ibid. 37-38), but then he added that about a year later (3 Nov 2009) he

had verified that the surviving individuals had been reduced to 10, i.e. 75% fewer (Fig.3), and that the population seemed to have been destroyed by climate change created by the dam and the capybaras (*Hydrochoeris hydrochaeris*, the largest rodent that currently exists) due to the new water reservoir.

On November 16th 2011, after reaching the private fazenda and asking the owner (who did not seem to be aware of the presence of *P. rechensis*) for permission to enter the woods, we walked for a good half hour.

Franco could not remember the exact location as he had not been there since his last visit on 4th March 2005, which was about seven years earlier when he was carrying out research on his thesis. We came across a small clearing created by a flat rocky outcrop covered in moss, at the centre of the outcrop there was a large population of *Parodia linkii* (Lehmann) R. Kiesling (Fig.4) which was in good health,



Fig.8 *Parodia rechensis*. Ana Rech, 4 Mar 2005, (Celli Marchetti 2008, 63: ANEXO XI, Fig.C.)

while at the edge of the stone, right at the edge of the forest, we finally saw some small groups of *P. rechensis* blooming (Figs.5-7).

We had conflicting feelings, we were happy to have found the taxon and appalled because so few individuals (we counted only 42) were perhaps the last of a species that is disappearing; given that the population studied in 2005 numbered 120 individuals (ibid.: 37), we registered a decrease of 65% (Figs. 8-9).

Both populations are very small, which is why Franco reported to us an attempt that was made to reproduce the species in greenhouses at that time. On the 4th March 2005 living material was collected and placed into cultivation in the JBCS (No. 5) under Professor Ronaldo's supervision.

Unfortunately, of the plants that initially seemed to grow vigorously, flowering and fruiting, not one survived to the second year (ibid. 37-38).

The fact that the taxon is problematic in cultivation is something that is well-known. Mace (1978: 60) summarized this problem: "This is a species which has remained very scarce in cultivation and plants which have been imported seem weak and unwilling to re-establish".

The reasons that can lead to the extinction of a species, in a case such as *P. rechensis*, can be imagined. The populations in question, though known to be coveted by collectors, were safe from this kind of danger. On the other hand, for the population we visited we cannot attribute the decreasing plant problem to the



Fig.9 *Parodia rechensis*. Ana Rech, 16 Nov 2011, AM 821

dam, nor can we assign a large amount of damage to capybara: nevertheless the plants are gradually disappearing.

Franco thinks that the advancing forest is suffocating the survivors, but it must be remembered that in the same place, and under the same conditions, as we already said, *P. linkii* reproduces itself and lives in excellent health (Fig.10).

Certainly in the past, *P. rechensis* has been plagued by theft. Also, the urban and agricultural expansion has severely altered the landscape. It is equally certain that those factors have isolated the favourable areas for the population's survival, causing local extinction and reducing its own genetic variability (Celli Marchetti 2008: 1-2) and that is probably the key point.

While *P. linkii*, in Darwinian terms, is a dominant species, i.e. the one that proves to be the most opportunistic, since it is the most widespread of the genus *Parodia* among the six living in the rocky outcrops of the Caxias do Sul Municipality (ibid.: 44); *P. rechensis* is a species that has always been "genetically weak", and that no longer enjoys potential genetic variability in its habitat due to the scarcity and fragmentation of its populations. Unfortunately it is very unlikely that this variability can now be recreated in cultivation.

We are aware that in the Plano de ação nacional para conservação das Cactáceas, Série Espécies Ameaçadas n° 24 (Zappi et al. 2011), which lists *P. rechensis* at the rank of risk DD (ibid.: 25) following Hunt et al. (2006), there has been an initiative described by João Larocca



Fig.10 *Parodia rechensis* and *Parodia linkii*. Ana Rech, 16 Nov 2011, AM 821; AM 822

(UNISINOS) as follows: "To propose priority areas for conservation based on studies of the distribution and presence of *Parodia rechensis* (RS)", where the difficulty is considered medium, the priority is high, and the deadline is scheduled for October 2013 (ibid.: 84).

What we can say, based on the surveys conducted and from the data and information gathered (using the IUCN categories and criteria), is that it seems appropriate to propose an update of the risk assessment of the conservation status of *P. rechensis* from the previous sources:

Gerloff & Hofacker in Braun & Esteves (2001): Extinct in the Wild?, EW?

Justifications: fire, habitat destruction, grazing and urbanization

Hunt et al. (2006): Data Deficient, DD

Anceschi & Magli (2012): Critically Endangered, CR B1ab(ii,v)+2ab(i,ii,v); C2a(i);E

Justification: the extent of occurrence is 8.5 km², the only two known populations are very small and during the last 7 years have

decreased with percentages ranging from 65% to 75%, the area of occupancy of the two populations combined is estimated to be a few square metres, the quantitative data shows that there is a 50% probability that the taxon will disappear from its habitat in the next 10 years.

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