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Autor / Author:

MARTEN VAN DEN BERG, Purmerenderweg 141, 1461DH Zuidoostbeemster, The Netherlands. Email: martenvdberg@tiscali.nl

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First impression of the redesigned Belvédère area in Maastricht, home of the northernmost autochthonous population of *Podarcis muralis*.

MARTEN VAN DEN BERG, October 2019

Abstract

A report is made of a visit to the Belvédère area in Maastricht on Saturday the 21st of September 2019. This is shortly after the completion of major changes in this area, which is also the location of the northernmost native population of *Podarcis muralis*.

Zusammenfassung

Ein Bericht über einen Besuch in der Region Belvédère in Maastricht am Samstag, den 21. September 2019, kurz nach dem Abschluss größerer Veränderungen in dieser Region, in der sich auch die nördlichste einheimische Population von *Podarcis muralis* befindet.

Keywords: *Podarcis muralis*, Frontenpark, Maastricht.

Introduction

The thermophilic wall lizard, *Podarcis muralis*, is bound in the northern area of its distribution to river valleys, and where the necessary natural structures are lacking, depending on man-made structures. Human intervention is therefore more or less a condition for its presence, and also an additional threat to its continued existence in these areas.

The history of the one and only autochthonous Dutch population of wall lizards at Maastricht is extensively described in the work of KRUYNTJENS (1993), and the indigenous nature of this population was later genetically confirmed in relation to the other maintaining non-native populations of wall lizards in the Netherlands (SPIKMANS & OUBORG 2015).

The all time low of the Maastricht population was reached in the fourth quarter of the last century. After decades of habitat degradation and disintegration, the wall lizard was confined to two small populations in the remaining former fortifications the “Hoge Fronten” and the “Lage Fronten”, separated by a for lizards impassable busy road. During a visit in the nineteen-eighties to the Hoge Fronten I could confirm the deplorable condition of this population by myself.

Fortunately, this period also marks a turning point in the awareness of the special nature and importance of this population. Today both the species and habitat are protected by legislation, the population is monitored, and the habitat is actively managed (BONNEMAYER & DIETVORST 1979 ; STRIJBOSCH et al. 1980a, 1980b ; KRUYNTJENS 1988, 1994 ; PRICK 1989 ; KRUYNTJENS & BIARD 1991 ; MOORS & FRISSEN 2004 ; BLANCKAERT & HERMANS 2009 ; SPIKMANS & BOSMAN 2011, 2016).

Big changes in the Belvédère area

According to the Palmbout Urban Landscapes master plan, presented in 1999, the outdated Belvédère industrial area was to be transformed between 2000 and 2025 into a modern living and working area with up-to-date infrastructure. Important elements in the plan were: the relocation of the western landing of the Noorderbrug, the

partial relocation of industrial companies, the redesign of the remaining industrial sites, the redevelopment of industrial monuments, the construction of various residential areas (with a total of 4500 homes) and the development of the Frontenpark. One of the most striking features of the original plan was the construction of a residential area on the Belvédère mountain, an artificial hill that was created on the site of a landfill (ANONYMOUS 2019a).

In connection with the crisis on the housing and office market and the expected population decline in South Limburg, the development of residential buildings was abandoned after 2005. This offered opportunities for better nature development in the area, a case that RAVON (Dutch reptile, amphibian and fish research foundation) and CMNE (Maastricht Center for Nature and Environmental Education) have advocated, resulting in a report from RAVON commissioned by the municipality of Maastricht (SPIKMANS & BOSMAN 2013).

Meanwhile, the wall lizard population in Maastricht had recovered since the 1990s and was expanding along the Maastricht-Lanaken railway track and also to a lesser extent in the Bosscherveld industrial area and along the river Maas bank (see figure 1). To strengthen this process and to offer compensation for habitat loss and disturbance during the planned activities, RAVON made a proposal with two new habitat core locations; Belvédère mountain, and Fort Willem, the latter a former habitat of the wall lizard. The core locations should also be connected by means of four new connection zones (see figure 2).

The assumption that the railroad track after re-commissioning (which proved to be not successful), and the now planned commissioning of a fast tram connection with Hasselt, should make this area not suitable to sustain a core wall lizard population (SPIKMANS & BOSMAN 2013), has been formulated too carefully in my opinion. Nevertheless, this proposal offers good opportunities for strengthening of the entire population with, in addition, a considerably larger area. The RAVON proposal was incorporated in the master plan and the first results became visible between 2015, Belvédère mountain, and 2019, completion of the new Noorderbrug route and the underpass between Hoge Fronten and Lage Fronten (see figures 3 and 4).

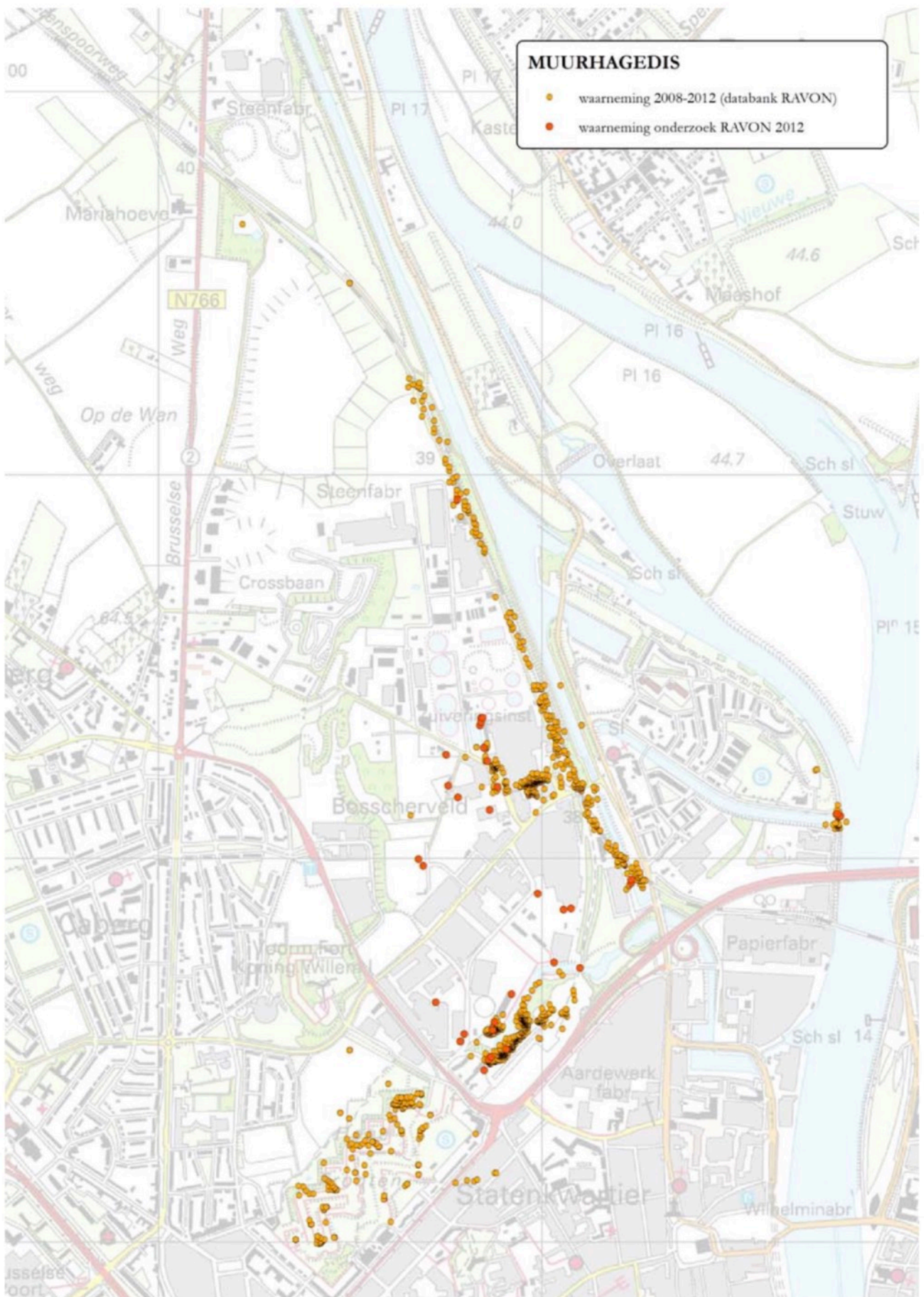


Fig 1. Orange dots: Observations of wall lizards 2008-2012 from the RAVON database. Red dots: Observations of wall lizards from the 2012 RAVON research. (Source: SPIKMANS & BOSMAN 2013).



Fig 2. Proposed structure for a sustainable metapopulation of the wall lizard in Maastricht. (Source: SPIKMANS & BOSMAN 2013). Dark green area: Primary habitat with core populations. Green area: Connection zone with satellite populations. Light green area: secondary habitat with satellite populations. Red blocks: New roads.



Fig 3. On Wednesday the 10th of June 2015, alderman GERDO VAN GROOTHEEST put the new habitat for the wall lizard and slowworm on the Belvédère mountain in Maastricht into use. Various measures have been taken on the mountain to move these unique animals to this new location. Together with employees of the Center for Nature and Environmental Education (CNME), the alderman has set out the first slow worm in the area. The habitat on the Belvédère mountain is part of a larger package of nature-compensating measures that are being taken in connection with the construction of the new Noorderbrug route. In total around 650 slow worms and 120 wall lizards are to be released in this new area. (Source: www.belvedere-maastricht.nl).



Fig 4. On Wednesday the 26th of June 2019, alderman GERT-JAN KRABBENDAM took the new walking routes through Frontenpark into use with a cannon shot. With the opening of the walking routes, the completion of the Noorderbrug project is also a fact. Maastricht has a large new city park on the north side of the city center. This "unpolished" park reconnects the fortifications of the Hoge- and Lage Fronten. The nature park is a counterpart to the city park on the south side of the inner city and has a rougher and rougher appearance. With plenty of room for flora and fauna, events and cultural heritage. (Source: www.belvedere-maastricht.nl © 2019: FRED BERGHMANS). Viewpoint from the Lage Fronten on the new underpass to the Hoge Fronten.

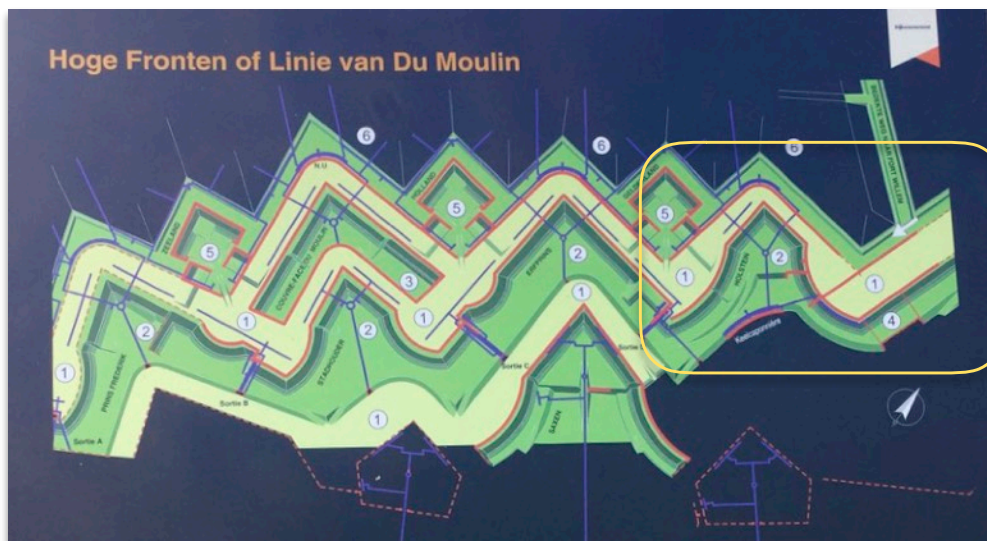


Fig 5. Map of the Hoge Fronten, with the accessible area yellow outlined. The light green areas are the dry moats, and the red lines represent the stone walls.



Fig 6. View on the western wall during the afternoon.



Fig 7. First photographed lizard, a female *Podarcis muralis*.



Fig 8. View on the eastern wall, part of Bastion Holstein, during the afternoon.



Fig 9. View on the northern- and western wall during the morning.

Observations

My visit to the wall lizards in Maastricht, on a warm (26° C) and sunny Saturday the 21st of September 2019, came unprepared. I knew about the expansion of the population along the railroad track and inside the industrial area, but I was unaware of the radical changes that had taken place in the area. So it became a stroll with many surprises.

The first objective was a renewed (second) visit to the Hoge Fronten. Just after reaching the first sun lit wall, I spotted three wall lizards right away. Well, that was already half the number of lizards spotted on my first visit back in the 1980s. Only the first part of the fortifications (Holstein) was open to the public, but nevertheless it took me no effort to spot dozens of wall lizards, of which a very large part consisted of juveniles. This was a first surprise indeed. Of course I was expecting more lizards than during my first visit, but the large number that I now encountered blew me away. The camera sounded like it was in burst mode.

Most of the adult specimens were quite relaxed, and not very active. Lots of them were even “basking” in the shadow. The younger lizards were very active,



Fig 10. Vulnerable area temporarily closed.



Fig 11. The closed area from a different perspective.



Fig 12. View from Hoge Fronten towards the Cabergerweg (14-03-2018). In the foreground the preparatory work for the underpass of Cabergerweg that will connect the fortifications of Hoge and Lage Fronten. (Source: KLEON3 at Wikimedia Commons).



Fig 13. View towards Hoge Fronten and Cabergerweg (28-04-2019). (Source: KLEON3 at Wikimedia Commons).

but that is not surprising, since they have not yet been able to conquer a permanent place of residence, and they also have to forage continuously.

After more than an hour it was time to move on. I walked back towards the entry point and took the wooden (temporary) staircase down to the recently excavated dry moat with its original recently exposed walls. This moat is part of the newly constructed passage under the Cabergerweg, and was a second pleasant surprise for me. At the bottom of the stairs I still saw one lizard, but I could no longer spot lizards on the recently exposed old walls, nor on the new lizard-friendly wall of the underpass. In retrospect, considering that this area is only in use for a few months after radical work, nothing else was to be expected.

The layout of the underpass consists of a broad footpath of crushed stone, with a three-meter wide strip of vegetation on the side of the lizard-friendly wall, separated by recycled rails, a nice detail referring to the formerly adjacent railway yard.

Two winter residences are said to have been constructed in the northern wall of the dry moat. Furthermore, the brickwork is not finished too tight; holes and cracks in the joints ensure that plants and small animals will soon thrive inside the dry moat (ANONYMOUS 2019b).



Fig 14. Cabergerweg underpass, with detail of the lizard-friendly wall (28-04-2019). (Source: KLEON3 at Wikimedia Commons).



Fig 15. Male wall lizard at the Hoge Fronten.



Fig 16. Female wall lizard at the Hoge Fronten.



Fig 17. Juvenile female wall lizard at the Hoge Fronten.



Fig 18. Juvenile male wall lizard at the Hoge Fronten.



Fig 19. One of the shadow “basking” adults (male) at the Hoge Fronten.

To my first impression is the lizard-friendly wall only consisting of sun terraces, without shelters. Nevertheless should this solution be suitable for connecting the previously separated populations of the Hoge- and Lage Fronten. Maybe even permanent colonization by *Podarcis muralis* of this area is possible, but only the future will tell.

After passing the underpass, I chose a route on the northwestern side of the wet moat because the walls were lit by the sun. The first lizards appeared around Casemate Ravelijn A (see figure 20), not in the same abundance as in the Hoge Fronten, and they also seemed less approachable to me.

I have not been able to inspect all walls on this side of the wet moat, because the narrow path seemed to become increasingly inaccessible. Several lizards were spotted, mainly at the base of the walls. I got the impression that these walls were less suitable renovated for lizards (see figure 21).

Finally I decided to climb up on a slope between two walls and ended up on a footpath between the fortifications and the newly created event area, where there used to be a messy industrial site. On the way up I spotted some wall lizards between the



Fig 20. View of the wet moat (and former harbor) Havenkom with remnants of the Lage Fronten fortifications (11-04-2016). To the left Casemate Ravelijn A, and to the right Bastion B. (Source: KLEON3 at Wikimedia Commons).

Fig 21. View of the north-western and northern walls of the Lage Fronten, with in detail the implementation of the renovation. In the background the slope of the new Noorderbrug route.



Fig 22. Male *Podarcis muralis* at the base of a wall (Lage Fronten).



Fig 23. The stone baskets are being used (Lage Fronten).

vegetation. Alongside the footpath stone baskets have been placed, used by the wall lizards as sheltered basking spots. In contrast to the former industrial site, the resulting open space of the event area is completely unsuitable as habitat for the wall lizards. On the other hand, the slope of the Noorderbrug route could be turned into a suitable habitat, to surround the event area from an extra side. I have not been able to determine whether provisions have been made for this purpose.

During my walk on the footpath towards the Maastricht-Lanaken railway line, I did not see any lizards until just after the Noorderbrug, at the former side branch towards the Boschpoort railway yard. While passing this bridge, I was no longer surprised that on the western landing of it measures were taken in favor of the wall lizard; the head of the slope was completely covered with stone baskets (see figure 24). I could not spot any new settlers; it wasn't long enough after the construction mayhem. But when approaching undisturbed territory the lizards did reappear.

I walked alongside the railway track until the railway bridge over the Fort Willemweg. I was able to see, but not approach, the walls specially built for the lizards along the track, because the track is protected with a permanent fence. However, on the footpath on my side of the fence, lots of lizards were visible.



Fig 24. Stone baskets as part of the new bridge crossing the former Boschpoort railway side branch. (Source: www.siebenmediaproductions.nl).



Fig 25 - 26. Male *Podarcis muralis* preying on an insect near the Maastricht - Lanaken railway track.



Fig 27. Female wall lizard.



Fig 28. Concrete footpath with two lizards “visible”.

This footpath consists of concrete plates that are mounted on the rails that obviously are no longer in use, and this path continues up to the current Frontenpark parking lot, at the western side of the Lage Fronten area.

Especially when I walked back to the Lage Fronten, and not longer being focused on taking pictures of the lizards because of the backlight situation, it felt like I was walking on the wooden elevated footpath at Platja de Migjorn in the south of Formentera; lizards everywhere that used the construction. I counted at least 20 specimens on the 200 meter long section towards the bridge.



Fig 29. Greenish male wall lizard.



Fig 30. Female (or maybe a subadult male) wall lizard near the Maastricht - Lanaken railway track.



Fig 31. Female wall lizard at the Lage Fronten.



Fig 32. Male wall lizard at the Lage Fronten.

I continued my way over the “lizard highway” to the end at the Frontenpark parking lot, to once again pass the underpass, to check the afternoon sunlit walls at Hoge Fronten.

The abundance of lizards diminished in Lage Fronten, compared to my observations at the railway track, and also the afternoon abundance of lizards in Hoge Fronten was lower compared to the morning situation.



Fig 33. “End of the road”, literally and figuratively.



Fig 34 - 37. Some impressions of the lizard highway in the Lage Fronten area.

Conclusion

During this three-hour walk on a perfect day for lizard sightings, I can conclude that the *Podarcis muralis* population made a very healthy impression to me.

Some improvements made to the habitat have already demonstrated their positive value, of which the covering of a part of the side-track to former Boschpoort railway yard probably made a very large contribution to the expansion of the distribution area, or at least a maintenance of the exchange between the sub-populations in Lage Fronten with those of the railway track.

If I had prepared myself a little bit better, I would certainly have taken a look at the adjustments made for the wall lizards at Fort Willem and on the Belvédère mountain. Enough reason to visit this area in the future again.





Fig 38. Holstein Bastion, last visited wall at Hoge Fronten.



Fig 39. Juvenile wall lizard at Holstein wall.



Fig 40. Juvenile wall lizard at Holstein wall.

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Fig 41. Male *Podarcis muralis* at Holstein wall.