

Chapter 3

Temporary Nature - A Win-Win for Nature and Developers: Tinkering with the Law in Order to Combat Biodiversity Loss



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Abstract Temporary Nature has been pitched as a recent illustration of a more collaborative, reconciliatory approach to nature management in human-dominated landscapes. In essence, the novel concept is focused on providing more opportunities for nature development on temporarily available lands, which will subsequently be turned into a housing zone or an industrial site. By opening up these sites for nature development on a temporary basis, without hampering future developments, the concept might lead to net gains for endangered pioneer species. In doing so, Temporary Nature stands out as a remarkable win-win approach, which might help to enhance nature on lands which would, in lieu of such an instrument, remain out of reach for nature. The recent Dutch experiences with Temporary Nature have already revealed that such long-term beneficial effects effectively materialize on the ground. Even so, additional research will have to reveal the ideal circumstances under which this concept can yield an optimal outcome in terms of biodiversity gains and local acceptance.

Keywords Temporary Nature · Safe harbor agreement · Reconciliation ecology · Pioneer species · EU Nature Directives

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3.1 Developers Are People Too

People love threatened species, especially the charismatic threatened ones. Developers are people too, that goes without saying. And many developers, when on holiday, really enjoy seeing threatened, charismatic species. Typically, however, their enthusiasm is much less when these species show up at their building sites. In such a context, endangered nature is often exclusively approached as a ‘liability’, which could give rise to a potential obstacle course when seeking to obtain planning permits for new developments. This more reluctant view is understandable; many threatened, charismatic species are strictly protected, and their presence could indeed spell trouble for a building project. This will manifest itself in longer procedures to obtain a permit to remove the protected species or extra costs for compensation for example. In some instances, the future economic development plans will have to be placed on the back burner to execute the substantive protection duties attached to certain endangered species.

To prevent this from happening, developers increasingly decide to implement avoidance actions to keep their vacant lots ‘nature-free’. Such measures are often very costly and involve actions such as intensive mowing, the use of pesticides and the placing of fences on areas suitable for future development. In turn, this gives rise to a certain paradox: one should expect nature conservation legislation to spur measures that are beneficial for biodiversity. However, the effect of conservation legislation in these specific circumstances is counterproductive: it leads to actions that are damaging for nature. Instead of promoting win-win scenarios, which seems to be in line with the recovery objectives upon which most nature conservation laws are predicated (Cliquet et al. 2015), a stringent application of protection schemes seems to give rise to perverse incentives, which favour unsustainable management practices on lands over interesting win-win scenarios. Nevertheless, the survival of many pioneer species, such as the Natterjack Toad and the Fen Orchid (Fig. 3.1),



Fig. 3.1 The strictly protected Natterjack Toad and Fen Orchid regularly benefit from dynamics circumstances at building sites. (Photo credit: Rudmer Zwerver)

has become increasingly dependent on the seizure of this unhidden potential on lands that are often not located in designated protected sites. Doing nothing is not an option.

In the Netherlands an innovative legal solution - beneficial to developers, nature and local people – has been proposed to turn this lose-lose situation around. The solution is dubbed ‘Temporary Nature’ and aims to reconcile the possibility to create new opportunities for endangered species with the quest for additional legal certainty at the developers’ side. To do this, it was suggested to grant project developers the possibility to obtain a derogation to remove endangered species before they actually decide to open up their lands for them. In other words, they receive additional legal certainty about future development actions prior to their decision to allow nature to settle on these lands for a provisional time. Key to this approach is that no additional mitigation and/or offset measures will arise when developers opt for Temporary Nature on their lands. In 2006, a team of Dutch legal experts (Chris Backes and Hans Woldendorp), a conservation organisation (ARK Nature) and an innovative consultancy firm (Stroming) jointly worked out the relevant legal, ecological and social issues of this novel approach. From early on, these experts were supported by the Dutch government, resulting in a guidance document, which further spells out the details of this innovative nature conservation concept.

From Idea to Reality

Innovations often take time to land, and Temporary Nature is no exception. However, as of today, it is widely applied in the Netherlands and has also been included in guidelines in other countries such as the Flemish Region of Belgium (Agentschap Natuur en Bos 2018) and Germany (Becker et al. 2018). There is a foundation promoting the concept with a board of companies (Port of Amsterdam), a foundation of conservation organisations: ‘LandschappenNL’ (a network representing 20 provincial nature and landscape conservation organizations) and the Dutch Butterfly Conservation, with many others supporting their work.

To date, almost 50 derogations have been granted for a total of over 3500 ha of Temporary Nature (tijdelijkenatuur.nl, [undated](#)). A few sites have already been cleared and developed, but most are still Temporary Nature. While these areas are found all over the country, in a large variety of settings, the majority are located on former agricultural lands destined for houses or business parks. Some, mostly the smaller ones, are found in cities or towns. The harbours of Rotterdam, Amsterdam (Fig. 3.2) and Groningen province contain the largest areas.

In the Netherlands alone, there are more than 40,000 ha of empty land which could potentially become Temporary Nature. And although each Temporary Nature area will obviously be temporary, the gain for nature in general is permanent. Seeds and young animals will spread out into the surrounding environment, helping to preserve and strengthen populations in the wider landscape.



Fig. 3.2 Official opening of the 1st Temporary Nature site at Port of Amsterdam in 2010. (Photo credit: Arnold van Kreveld)

3.2 The Legal Framework

3.2.1 *The Legal Dilemma*

Within all EU member states, wild birds and many other species are strictly protected on the basis of the European Birds Directive (European Parliament 2010) and Habitats Directive (Council of the European Communities 1992). These two directives constitute the bedrock of the EU nature conservation policy (Schoukens and Bastmeijer 2015). Killing and intentionally disturbing protected animals or gathering fruit or seeds from protected plants is forbidden. For many activities, a derogation from these prohibitions is not easy to obtain, if at all. If such a derogation is applied for at the moment the developer wants to clear a site to realise his plans, the criteria for granting exceptions are very restrictive, especially in the case of birds. As explained earlier, developers will try to prevent protected species to occur on their sites. In essence, the application of the European Birds Directive and Habitats Directive depends on the actual presence of protected species. And accordingly, one can freely implement mowing and ploughing practices aimed at preventing such species to settle in the first place. As a result, in such instances, nature protection law does not protect nature, but on the contrary it prevents that nature can develop (Fig. 3.3).



Fig. 3.3 Mowing a vacant lot to keep it free from protected species. (Photo credit: Ingrid Roerhorst)

3.2.2 The Legal Solution: Antedating Requesting a Derogation

The legal solution for this dilemma is antedating requesting and granting of the derogation to the moment before the nature develops (Schoukens 2017). Hence, the derogation is immediately applied for when the developer purchases a plot of land or when a previous use, like for example agricultural use, is stopped and nature is given room to further develop. Granting a derogation before opening up lands for nature enhancement is obviously not thought of when the legal provisions in the Birds and Habitats Directives and their national equivalents were drafted. Usually, someone who applies for a derogation, for example a developer, does exactly know which species are present at his site and which nests, birds or plants he wants to remove. The developer will then apply a derogation for a precise list of species. However, the respective EU and national legal provisions do not force such a reading and application. As such, the Directives do not stand in the way of antedating the granting of a derogation, as depicted above. Antedating the derogation and allowing to remove all kinds of species which are likely or might occur on the site is not explicitly forbidden by the law (Woldendorp and Backes 2011).

Antedating the application and granting of the derogation solves three problems at a single blow.

First, the abovementioned approach can be aligned with a specific derogation ground, mentioned in the Birds and Habitats Directives. As is obvious from the above, removing nature – even if only intended to be temporary – is prohibited by the strict protection duties set out

in both directives. However, according to the Birds Directive, a derogation can be justified for ‘the protection of flora and fauna’ (Article 9(1), sub a Birds Directive). Similarly, the Habitats Directive allows the issuance of derogations ‘in the interest of protecting wild fauna and flora and conserving natural habitats’ (Article 16(1) sub a Habitats Directive). Both justification grounds can serve as legal basis for derogations which will be necessary to remove the nature which has developed on sites which temporarily were not used for their primary (and definite) purpose. Allowing nature to develop on sites which temporarily are not used for other purposes creates, even if this nature is ‘removed’ in the end, a long-term surplus for flora and fauna and therefore contributes to ‘the protection of flora and fauna’, respectively is ‘in the interest of protecting wild fauna and flora’. These justification grounds cannot be used if the derogation is only applied for, as usually was done, just before the Temporary Nature is to be removed. In such a scenario, the removal itself has only negative effects on the protection of wild flora and fauna. Only if the application for the derogation is antedated and the removal in the future and the occurrence of temporarily nature is seen altogether, as a “single act”, the sum of the effects on nature is positive and the mentioned reasons for derogating from the prohibitions of species protection law can be used. This approach also rests upon the assumption that without this win-win solution, no additional opportunities for the enhancement of nature will arise. In such an instance, developers will give precedence to the continuation of the shoot, shovel and shut-up approaches.

Second, the antedating of the derogation creates additional legal certainty for the developer. Prior to opening up lands for nature development he has obtained his derogation to remove the nature in a subsequent stage (see Fig. 3.4). This entails that the developer knows that he will not face any additional legal problems due to the presence of nature, when the nature is removed, and the site is economically developed.

The third advantage has also to do with legal certainty. Even if a developer tries to keep a site “nature free”, he or she cannot be sure this will be successful. If, despite using pesticides, deep ploughing and other measures, a certain protected species appears nevertheless, the developer will have to ask for a derogation to remove it, which will not be easy or even impossible to obtain. These concerns will disappear if the developer chooses to obtain a derogation for a case of Temporary Nature, as he already has the derogation in his hands and does not have to worry about protected species that may appear before the site is used for its definite purpose.

3.2.3 *Ensuring a Net-Positive Effect for Nature*

To ensure that allowing Temporary Nature to develop and to be removed has a net-positive result for nature and effectively favors ‘the interest of protecting wild fauna and flora and conserving natural habitats’, the derogations come with a number of conditions. The most important conditions that are attached to the derogations are the following:

- Do not disturb breeding birds;
- The derogation is limited to the species and activities mentioned. The derogation is applied for all species that may, given the local circumstances, occur. When assessing applications, a distinction will be made between the different biogeographical regions of the Netherlands. For each of the different biogeographical



Fig. 3.4 Port of Rotterdam opened up lands for nature development. (Photo credit: Niels de Zwarte)

regions a species list covers all of the species that may be found in that region. The application for the derogation can simply include a reference to the biogeographical map and the associated species list;

- If other (newly established) strictly protected species are found, or other activities planned than those mentioned in the derogation, the authorities need to be notified immediately;
- Monitoring must take place before clearing an area;
- A so-called ‘Ecological Working Protocol’ must be drawn up by a trained ecologist, before clearing the site, and then adhered to. Often the ecologist must be present during (a part of) the clearing of the site.

These conditions are common and in general added to all derogations granted under the Dutch nature protection law. There are two additional conditions, specific to Temporary Nature:

- Measures that could restrict colonization of the site by the species for which the derogation was granted must be omitted as much as possible;
- Measures that could restrict dispersal from the site of the species for which the derogation was granted must be omitted as much as possible.

These two extra conditions are aimed at increasing the effectiveness for nature of using Temporary Nature on a site. In the meantime, the Dutch government developed a guideline on Temporary Nature, which explains the concept of Temporary Nature and lists the conditions for its use (Ministerie van Economische Zaken 2015).

3.3 Collaborative Policies

In recent years it has become clear that an increasingly strict application of nature conservation laws, such as the Birds and Habitats Directives, gives rise to counterproductive results when it comes to biodiversity protection in private lands. While a strict enforcement of nature protection statutes is an evident key to environmental success-stories, the case of Temporary Nature reveals that ‘out of the box’-thinking is required in order to avoid unintended consequences to arise, especially in the context of human-dominated landscapes where the room for additional nature development is scarce. Temporary Nature must be singled out as a rare, effective example of and inspiring template for more collaboration-based approaches to nature conservation.

3.3.1 *Deadlocks and Obstacle Courses: Command and Control Leading to Perverse Incentives*

Before describing how the case of Temporary Nature fits with other trends towards more collaborative approaches to nature conservation, one needs to understand the mounting criticism to which the latter fell victim over the past decades. In essence, many of the environmental regulatory statutes dating back to the 1970s to 1990s – such as the Habitats and Birds Directives – are grounded upon a so-called ‘command and control’ approach (Schoukens 2015). The rules concerning strictly protected species under EU law provide a poignant illustration thereof. In essence, this set of rules bans a certain number of inherently harmful practices and activities. They principally reflect a preventative approach to nature conservation. As can be derived from the analysis above, these rules appear to be more focused on the protection of individual specimens than on the preservation of the wider population of a species; they also apply both inside and outside protected sites. Only under a very limited set of circumstances can a derogation be granted for economic developments that run counter to the protection duties under the Birds and Habitats directive. This leaves very limited room for bargaining, even when economic considerations are at play.

Given the increasingly tight application of the rules on species protection in countries such as the Netherlands, Germany, the United Kingdom and Belgium, the Habitats and Birds Directive were increasingly framed as an obstacle course than an instrument to achieve clear wins from the vantage of biodiversity (Schoukens 2015). This was especially the case in the Netherlands, where the relatively strong and prominent role of environmental NGOs led to an increasing number of legal actions against planning permits based upon EU nature conservation law. Hundreds of legal challenges based upon species protection law created additional fear amongst project developers. For instance, the presence of several highly endangered hamsters led to long delays when developing a cross-boundary industrial estate due to lengthy legal procedures (Dutch Council of State 2000). When a colony of spoonbills settled in the Vlissingen Port Area, a Dutch NGO unsuccessfully tried to force the Dutch

government to designate the area as protected site (Dutch Council of State 2010). Even when the bulk of these challenges did not lead to a definitive permit refusal for project developers, the impression was created that nature conservation law seemed to punish private landowners who had species habitats on their lands by restricting future development. This finding fuelled the resistance amongst business people and project developers against nature conservation laws. A much-shared criticism was that modern nature conservation laws did not put forward sufficient incentives to compel or encourage private landowners to restore lost habitats. In the 1990s, several private landowners in the United States openly opted for a so-called ‘shoot, shovel and shut up’-approach, which resulted in the clear-cutting of areas in order to prevent protected species to settle there in the first place (Paulich 2010). Also in the EU, especially in the Netherlands and Belgium, several cases of pre-emptive habitat destruction have emerged over the past 10 years. For instance, in Belgium courts reasserted the legality of the actions of a harbour company aimed at preventing sea gulls to roost on plots of land intended for the enlargement of an industrial estate (Court of First Instance (Bruges) 2014), while in the United Kingdom the technique of ‘newt fencing’ (see Fig. 3.5), poised to preventing the arrival of Great crested newts on sites destined to become industrial estates and housing zones.

3.3.2 *The Shift towards More Collaborative Approaches*

Against the backdrop of these increasingly antagonistic stories regarding nature conservation on private lands, a new, more collaborative and reconciliatory environmental paradigm emerged. In literature, the concept of ‘reconciliation ecology’ was



Fig. 3.5 Fence aimed at keeping protected amphibians out of an area to be developed. (Photo credit: Arnold van Kreveld)

pitched, which specifically aims at fostering nature conservation in human-dominated landscapes (Lundholm and Richardson 2010). Instead of focusing on what is bad for nature, the new approach tried to tackle the underlying incentives when it comes to nature conservation on private lands. While not all of the currently unused or undeveloped lands might offer additional opportunities for nature conservation, it became clear that merely focusing efforts on protected sites will not lead to a more sustainable solution for the ever-increasing biodiversity loss. Whereas many of these private lands will continue to lay fallow for several years – often awaiting a future economic development – such areas might still serve as important safe harbors, especially for pioneer species, such as Natterjack toads and Little plover (see Fig. 3.6). Seeing that the wider landscape is increasingly built up, such species lack sufficient pioneer habitats to thrive. By encouraging private landowners and project developers to open up their lands – even on a temporary basis – for these species, nature conservation laws could effectively make the difference between imminent extinction and much-needed recovery.

Given that a large share of the actual and potential habitats of endangered species are located on private lands, the question arises whether modern nature conservation law can be interpreted so as to foster more facilitative approaches to nature conservation. This quest started in the United States, back in the 1990s. The fierce opposition to the Endangered Species Act – which dated back from 1973 – prompted the legislator to include additional derogation clauses. Yet, in addition, other guidelines were promulgated which allowed for additional ‘bargaining in the shadow of the law’ (Wheeler and Rowberry 2009).

With the arrival of the so-called ‘safe harbor agreements’ in the mid-1990s, an instrument was finally available to encourage habitat restoration and conservation



Fig. 3.6 Little plover depends on pioneer habitats not often found in Dutch nature. (Photo credit: Arnold van Kreveld)

amongst landowners, who do not necessarily want to develop their land in the short run, but want to reserve the right to do so at a later point in time. According to the U.S. Federal Fish & Wildlife Service's Policy document (FWS) 'A safe harbor agreement is a voluntary agreement involving private or other non-Federal property owners whose actions contribute to the recovery of species listed as threatened or endangered under the Endangered Species Act' (US Fish and Wildlife Service 1999). Under a safe harbor agreement landowners who voluntarily use their property for the benefit of species will, in return, be provided with a 'safe harbor guarantee', implying that no additional conservation measures will be imposed on their lands, even if the number of threatened or endangered species grows as a result of the actions of the landowner. The first safe harbor agreements were concluded in the U.S. back in 1995, in the absence of further administrative guidelines on how to reconcile the actions with the Endangered Species Act. The Policy itself only became officially effective according to the Federal Register of June 1999. In exchange for additional recovery actions, the participating landowners receive formal assurances that no additional restrictions will be imposed if the number of species increases through the landowner's actions. The landowner or farmer may, at the end of the agreement period, return the enrolled property to the baseline conditions that existed at the start of the safe harbor agreement. In the past decades, several safe harbor agreements have been concluded between the FWS and private landowners (Schoukens 2015). At least some of these agreements have reached remarkable successes. According to recent data, 4 million acres of private lands are now covered by these agreements, which harbor approximately 63 rare species. While many of the safe harbor agreements have a relatively short running time, the agreement for the Aplomado falcon has yielded the most impressive results, which is partly the result of robust reintroduction measures. However, other agreements have given rise to mixed results (Kishida 2001).

Either way, it is hard not to notice the parallels between the safe harbor agreements concluded under the Endangered Species Act and the concept of 'Temporary Nature', as put forward by the Dutch government in recent years. Admittedly, the territorial scope of the safe harbor agreements is notoriously larger than Temporary Nature, which basically focuses on vacant lots that have been accorded an economic destination of the applicable land-use plans. The former also apply to woodlands and prairies. Safe harbor agreements are also less preoccupied with going back to a baseline scenario. Whereas a return to the baseline is permissible, it is expected that in many instances private landowners are already content with the theoretical possibility to remove the additional nature at their own discretion. With Temporary Nature the focus is more on industrial plots of land which will inevitably be returned to nature-free zones on the short term. This also explains the differences in term of duration between safe harbor agreements and Temporary Nature. Yet, by and large, both instruments aim at providing more legal guarantees for private landowners when opening up their lands for additional nature enhancement actions. Moreover, the legal foundations of both approaches are quite similar. Both approaches are framed

within one specific derogation ground, granting additional leeway for actions which, when approached in a wider perspective, might ultimately enhance the survival of endangered species.

3.4 Ecological Effectiveness

The ecological effects linked to the usage of Temporary Nature-instruments have been the topic of many investigations. In 2006 a first report was prepared looking at the potential ecological effects of Temporary Nature in general (Linnartz 2006). The bottom-line of the findings was the following: Temporary Nature has many winners and no losers. On a plot of land, opened up for the development of Temporary Nature, plants and animals settle and their numbers evidently increase when no actions are contemplated aimed at the removal of these species. However, logically, these beneficial effects disappear whenever the nature is removed, and the site is being built. But in the wider scheme of things the positive effect linked to the usage of Temporary Nature is permanent (Reker 2006). When approached at population level, opening up potential industrial sites and housing zones for Temporary Nature makes sense because young animals and plant seeds spread out from the temporary habitat into the surrounding environment. Since areas used for Temporary Nature can function as centre of colonisation and stepping stone, they have a permanent beneficial effect on the populations of plants and animals in the wider environment. The risk that some species may ultimately decline due to the development of Temporary Nature areas is negligible when assessed at population level (Linnartz 2006). In other words, the overall populations of the targeted species will never be smaller compared to a zero-scenario of doing nothing.

For many species, including terns, Natterjack toads and various orchids, the impermanence of the sites is not a major issue in terms of survival conditions (Linnartz 2006). On the contrary, these so-called pioneer species thrive in areas where the conditions experience significant variation. For these ‘dynamic environment specialists’ in particular, Temporary Nature constitutes a welcome addition to permanent natural areas, where maintenance usually focuses on stability. At the end of the day, the mentioned species would also disappear as a result of natural succession.

The 2006 report concluded that Temporary Nature offers a place to settle, breed, forage, spend the night or pass the winter for pioneer species, species from early and later succession stages, migratory birds and winter visitors. The area can also function as a stepping stone or ecological connection, making it easier to reach other temporary and permanent nature areas. This research was subsequently backed up by more recent Flemish findings, which additionally stressed that Temporary Nature could be framed within the so-called metapopulation theory (Vriens et al. 2013). It is underlined that when framed within a meta-population approach Temporary Nature will lead to an increase of local populations of pioneer and early species. It was noted that the risk of creating additional ‘ecological traps’ – by opening sites for species which will be economically developed at the

end of the day – is not higher when compared with biodiversity in permanently protected sites.

3.4.1 Reality Check

Even though in theory the ecological risks tied to the usage of Temporary Nature appeared limited, a reality check is never a bad idea. In the past few years a number of field studies were performed looking at the effects of Temporary Nature in the real world. The two cases that stand out in terms of ecological knowledge are the Temporary Nature that has been developed at the Port of Amsterdam and at the Eeserwold (near the city of Steenwijk). These two sites are discussed in the following paragraphs.

Still a disclaimer has to be made. It is important to note that Port of Amsterdam and Eeserwold might not be representative for other sites. In both cases, (some) active measures were taken to improve ecological conditions, and these have had a notable positive impact on the biodiversity. Implementing such measures is not mandatory nor a prerequisite on other sites. Also, many sites have a much poorer starting point (e.g. very rich agricultural soil, which is much less interesting from an ecological point of view) and/or will be developed within 1–2 years, leaving less time for species to locate and colonize these sites.

3.4.1.1 Port of Amsterdam (Fig. 3.7)

This was the first Temporary Nature area to be established, with its derogation granted on 15 July 2009 (FF/75C/2009/0068.toek.mo). Ecological development and the clearing of this site have been well-documented (Vliegthart 2012; Smit and Melchers 2016), making this an interesting case. It is a small (9 ha) site. Though being a small site, it is ecologically interesting for diverse reasons. The poor, sandy soils are ideal for a diverse vegetation with many flowers and warmer micro habitats. This is attractive for many insects, including a number of relatively rare species. The harbour also hosts a few strictly protected species (under EU or only under the then applicable Dutch law).

Although the granted derogation did not include a duty to actively restore biodiversity, the Port of Amsterdam nevertheless decided to dig a pool for Natterjack toads (Fig. 3.8) and to erect a wall, in which Sand martins could breed. The site was not actively managed since this does not constitute a general obligation when working with Temporary Nature. In this case, the soil (sand) was so poor that the vegetation remained open. Natterjack toads, while rare in the Netherlands, are common in this area. Fen orchid and the then in the Netherlands strictly protected Western or Broad-leaved marsh orchid are also found frequently at the Port of Amsterdam. A number of strictly protected bats forage in the harbor, but they are not dependent on the Temporary Nature site.



Fig. 3.7 The first Temporary Nature area at Port of Amsterdam. (Photo credit: Arnold van Kreveld)



Fig. 3.8 Natterjack toads propagate in pioneer ponds like these at the Port of Amsterdam. (Photo credit: Arnold van Kreveld)

Ecological Effects

A first evaluation of the ecological results at this site (and two adjacent Temporary Nature sites in the immediate vicinity) was published in 2012 (Vliegenthart 2012). The report by Dutch Butterfly Conservation focuses on insects. It concludes:

‘Temporary Nature’ develops fast and in the right direction. There are already flowery meadows with high grassland butterfly diversity, which is positive since they are under high pressure. The investigated area of ‘Temporary Nature’ functions as important stepping stone in the region for this group and other species associated with open sand and pioneer habitat. These are usually dynamic systems from where species can disperse.

And:

The pilot project of Amsterdam Harbor creating the artificial relief and ponds in the Temporary Nature area, achieved a very good positive development for the biodiversity in the area. At this moment the area is a very important habitat and stepping stone for species of pioneer habitat and grasslands, which are currently threatened in the Netherlands.

The appearance of the rare (albeit not protected) blue-winged grasshopper (*Oedipoda caerulea*) was tagged as a major surprise.

The Amsterdam site was cleared in 2016 and 2017, and this process has been well-documented by Bureau Waardenburg (Smit and Melchers 2016). The report concludes:

The development of Temporary Nature since 2009 has been successful. A total of four more strictly protected species are found nearby. Of these, three have turned up in the Temporary Nature site. The site has become the most important area for Natterjack toad. Western or Broad-leaved marsh orchid and Bee orchid are well-established too. A number of bird species have also used the site, such as sand martin and kingfisher.

The clearing of the site was carried out by catching high numbers of Natterjack toads, small rodents and Smooth or Common newt and moving them to suitable areas in the vicinity. Orchids were replanted. Monitoring will take place in upcoming years to see if the species have successfully established themselves in their new habitats.

Over the years, tens of species, including a small number of strictly protected ones, have successfully reached the original site and subsequently propagated. Undoubtedly some of their offspring and seeds have dispersed from here, thereby increasing the chance for these species of reaching new suitable areas.

3.4.1.2 Eeserwold

The case of Eeserwold also constitutes another useful case, with the derogation granted on 1 July 2010. The site covers 172 ha. A derogation for working with Temporary Nature was granted for 113 ha, whereas the rest of the area is still under intensive agricultural use (corn) and a lake. The future development plans include areas for living (60 ha), a business park (32 ha), offices (8 ha) and public green areas used for recreation and water storage. Eeserwold is located directly northeast of the A32 highway, with the city of Steenwijk on the other side. On its southern border flows a small river (the Steenwijker Aa). To date, a few houses and some office building have been built, but most of the area is still Temporary Nature (Fig. 3.9).



Fig. 3.9 Temporary Nature at Eeserwold. (Photo credit: Arnold van Kreveld)

As mentioned earlier, the area has been subject to agricultural activities during the past years and, as a result, is relatively poor in species. Yet in the vicinity of and within the lake a few interesting species have been noted. Most notable was the occurrence of the pool frog (*Pelophylax lessonae*), which is protected under the Bern convention and the Habitats Directive. After the implementation of Temporary Nature, the site is much richer, with high numbers of Red List breeding birds. The project generated much enthusiasm amongst provincial and local nature organization, who decided to proactively collaborate with the other stakeholders of the project. Their activities include management advice, organizing excursions, conducting inventories and documenting ecological results.

Under the terms of the derogation for Temporary Nature, the area is managed naturally, partly through extensive grazing (Hereford cows), partly through extensive mowing and some areas are not managed at all. Management aims at creating and maintaining diverse, favorable circumstances for pioneer nature and for other natural values. Pool frog and Weatherfish (*Misgurnus fossilis*) are present at the site, mostly in parts where no developments will take place. Pool frog could (possibly only temporarily) benefit from the developments.

Ecological Effects

In 2011 an interesting study was published which focused on the breeding birds present in the said area (Zekhuis and Van der Weele 2011). It compares the Temporary Nature site to a reference area. This nearby reference area shares many of the characteristics of the Eeserwold before it was opened up for

Temporary Nature development. 36 bird species were found to breed on the Eeserwold, compared to only 7 species in the reference area. The main reason for this enormous difference is the fact that Eeserwold is much more diverse. The growth of higher vegetation in areas that were not managed (herbs, shrubs, young trees and reeds) attracts a high number of songbirds, some of which occur here in high densities.

The difference between the numbers of Red List species was much smaller; 6 at the Eeserwold (including good numbers of yellow wagtails, Fig. 3.10) and 4 at the reference area. Interestingly, the densities of meadow birds appearing in both areas were generally higher at the reference site than at the Eeserwold. However, as a result of early mowing in the (agricultural) reference area no young birds were thought to have survived. This in fact makes this agricultural site, like many other agricultural lands in the Netherlands, effectively an ecological trap.

Other groups are represented at Eeserwold in good numbers as well, including 147 species of plants (with 7 from the Red List), dragonflies and other insects and a number of mammals (hare, rabbit, roe deer and mice). No comparative studies were performed in the reference area, but most agricultural areas in the Netherlands have very low numbers of plant and animal species.

The authors of this study conclude that certain types of management could further increase numbers of species and their densities. Two years later, after 4 years Temporary Nature 'development' at Eeserwold, a follow-up study was published (Zekhuis and De Gelder 2013). The surveys covered breeding birds, butterflies, dragonflies, grasshoppers, mammals, amphibians and plants. The results were positive, with significant growth in the number of species and specimen. The rare Siberian winter damselfly (see Fig. 3.10) a species from the Red List, and otter appeared in the area.



Fig. 3.10 Yellow wagtail breeds in good numbers at Eeserwold and the rare Siberian winter damselfly is found here as well. (Photo credits: Arnold van Kreveld)

3.4.2 *Conclusion on Ecology*

The authors conclude that scale, location and accessibility have undoubtedly generated a major effect on the number of species and specimen in Temporary Nature. They advise to keep some parts of the area closed for people (e.g. for birds breeding on the ground). Not mowing some areas has provided good habitat for quite a few songbirds. Grazing also has positive effects on a number of species, but this is only the case when done extensively.

As with the Amsterdam site, undoubtedly offspring and seeds of tens of species, including protected ones, will have dispersed from here, thus increasing the chance for these species of reaching new suitable areas. However, a subsequent study might provide additional insights of the net-effect of the area when economically developed.

The above-treated research has aptly demonstrated benefits of Temporary Nature can be substantial. How much so depends on size, location, diversity of habitats (e.g. availability of open water), the soil, duration of the derogation, management, etc. As was predicted by theoretical studies, Whether or not this results in a stronger regional population in the long term is unknown. It may, as a higher number of offspring increases the chance of a species finding new suitable areas.

3.5 **Conclusions and Discussion**

In recent years, the application of the collaborative policies such as Temporary Nature has gained considerable traction, with at present over 3000 ha of lands covered in the Netherlands and other Member States implementing similar policies (Agentschap Natuur en Bos; Becker et al. 2018). This is not surprising, seeing that recent Dutch practices have shown that Temporary Nature has a positive effect on biodiversity, reduces the legal risk for landowners and also has created additional recreational opportunities for neighbors. Some of the above-mentioned benefits should be addressed more into detail.

First and foremost, by taking away the fear among landowners of facing additional restrictions when opting for more favourable nature management techniques on their lands, novel policies and concepts, such as Temporary Nature, could open new doors for the recovery and reintroduction of endangered species on large acreages of land which traditionally remained off the chart for traditional nature management actions. In recent literature the importance of having put into place strategies to foster nature conservation on urban and industrial sites is highlighted (Lundholm and Richardson 2010).

Second, collaborative instruments such as Temporary Nature also allow governmental bodies to strike sensible deals with private landowners in order to enhance biodiversity within urban or industrial zones, where nature often only plays a secondary role. In times of increasing resistance against environmental protection, especially whenever it touches upon ownership rights, shifted approaches such as Temporary Nature can help to further enhance the legitimacy of nature conservation laws without undermining its core principles, such as the preventative approach.

Third, while comprehensive research on the effectiveness of these novel policy approaches is lacking due to their relatively young age, recent studies indeed reveal that recently created Temporary Nature sites in the Netherlands appear capable of attracting many endangered species.

Fourth, it is widely known that funding shortages are seriously compromising the effectiveness of nature conservation law. In this regard, another important benefit to be mentioned precisely relates to the funding of Temporary Nature. In comparison with traditional conservation instruments, such as the concept of ‘protected sites’, the habitat creation for pioneer species is entirely supported by private landowners. In some cases, Temporary Nature might even be framed as a simple positive externality of an inherently damaging activity, such as mining or harbour development. Thus, in times of budgetary constraints, Temporary Nature steps in as a relatively cheap and attractive policy instrument to achieve quick wins for endangered species.

On a concluding note, it can be maintained that novel, more collaborative instruments – such as Temporary Nature – are not to be approached as a panacea for all ills. Of course, there might also be drawbacks and pitfalls. For instance, it needs to be ensured that Temporary Nature is not prioritized over more lasting efforts to preserve existing nature. In addition, Temporary Nature will only manage to create net effects when used in combination with a well-functioning environmental and conservation policy, which is based upon robust and well-protected ecological networks (Schoukens 2017). However, in times of persistent biodiversity crisis, more collaborative approaches definitely stand out as striking illustration of the recently emerged branch of reconciliation ecology. So great is the threat of imminent extinction, that out of the box-thinking is required to stave off new cases of extinction. Innovative tools, such as Temporary Nature, might serve as a useful counterpoint to command and control policies which, while much-needed, might in some instances lead to perverse incentives. It is crystal-clear that such novel approaches can serve as additional extras for species faced with imminent extinction. With their focus on nature enhancement in human-dominated landscapes, the above-discussed concepts open up new avenues for many endangered species. As of today, ordinary nature is often poorly protected beyond the ambit of protected sites and therefore any additional instrument capable of fostering additional protection is to be cherished. It must be stressed that caution is in order to avoid that concepts, such as Temporary Nature, are abused for the destruction of permanent nature. However, when sufficient oversight is put in place, this risk is negligible and Temporary Nature might continue to function as one of the most promising win-win approaches for nature in the context of human-dominated landscapes. Additional research and monitoring needs to provide additional background on the exact conditions under which such concepts might yield the most optimal results.

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