

# CREATING SPACE BY GIVING SPACE: A MANAGEMENT PLAN FOR INTEGRATION OF ECONOMIC DEVELOPMENT AND PROTECTION OF THE NATTERJACK TOAD IN A DUTCH POLDER\*

Reinier de Nooij\*\*  
Rob Lenders\*\*\*  
Rob Leuven\*\*\*  
Annemarieke Spitzen\*\*\*\*  
Ronald Zollinger\*\*\*\*

Species protection often conflicts with economic interests. Applying a proactive approach to nature conservation, in which conservation measures are integrated into economic activities, can lead to good results.

In the Netherlands, the presence of the strictly protected Natterjack toad often leads to conflicts.<sup>1</sup> For one particular region, it is even clear that application of conservation-minded legislation is counterproductive. Therefore, a species management plan (SMP) was specifically created for this region by means of a joint planning process that included all stakeholders.<sup>2</sup> The SMP is a framework for guaranteeing the long-term viability of the popula-

---

\* © 2009, R.J.W. de Nooij, H.J.R. Lenders, S.E.W. Leuven, A.M. Spitzen, and R. Zollinger. All rights reserved. This research was financially supported by the Province of Flevoland and the Dutch Ministry of Nature Management.

\*\* Optimal Planet training & consultancy, P.O. Box 9010, 6500 GL Nijmegen, The Netherlands.

\*\*\* Department of Environmental Science, Institute for Wetland and Water Research, Radboud University Nijmegen, P.O. Box 9010, 6500 GL Nijmegen, The Netherlands.

\*\*\*\* RAVON (Reptiles, Amphibians and Fish Conservation in the Netherlands), P.O. Box 1413, 6501 BK, Nijmegen, The Netherlands.

1. The Natterjack toad (*Bufo calamita*) is an amphibian found primarily in western and central Europe. BBC Science & Nature, *Natterjack Toad* 1, <http://www.bbc.co.uk/nature/wildfacts/factfiles/482.shtml> (accessed Apr. 17, 2009).

2. R.J.W. de Nooij, *Ruimte Geven, Ruimte Neven: Een Managementplan voor de Rugstreeppad in de Noordoost Polder*, Radboud Universiteit Nijmegen (2007).

tion of the Natterjack toad in the region while preventing unnecessary legal procedures. As such, it has both economic and ecological advantages.

The SMP was carefully aligned with the legal principles applicable to the Natterjack toad. Two major components form the basis of the SMP. First, it provides a protocol for management and spatial development measures aimed at preventing negative impacts on the regional population. Second, it incorporates measures for developing the population of the Natterjack toad and its habitat to a level in which spatial developments that can reasonably be foreseen will not compromise the conservation of the species in the region.<sup>3</sup> Furthermore, the SMP contains concrete guidelines and a number of guarantees for its implementation. The plan has a strong ecological underpinning and is supported by all relevant stakeholders in the region. Weaker aspects of the SMP include its dependence on the voluntary involvement of its stakeholders and its concern for only one species.

Integration of economic and ecological considerations in day-to-day practice may provide new opportunities for reaching goals of nature protection legislation, in combination with ongoing economic growth. However, the feasibility and desirability of applying the new approach must be judged for each particular situation.

### I. INTRODUCTION

Conflicts between economic and ecological interests often arise when species protection and spatial development projects claim the same space. Finding opportunities for solving these conflicts in a way that benefits the economy as well as ecology requires a creative and flexible approach. A promising option takes a proactive approach to nature conservation by integrating conservation measures into economic activities. This approach has been gaining ground in the Netherlands, other European countries, and the United States. Examples include the concept of “wetland mitigation banking” in the United States and the Dutch

---

3. The Natterjack toad favors a habitat with loose, sandy soil and often rests under large stones, crevices, and burrows. BBC Science & Nature, *supra* n. 1. Adult toads feed on insects, snails, worms, spiders, woodlice, and tadpoles. *Id.*

initiative “Building with Nature.”<sup>4</sup> Wetland mitigation banking is aimed at satisfying compensation obligations, and Building with Nature is aimed at providing safety, economic growth, and nature development.

#### A. Proactive Conservation of the Natterjack Toad in the Netherlands

In the Netherlands, the Natterjack toad (*Bufo calamita*) is a good example of a species that leads to conflicts and interesting paradoxes. Although strictly protected under the European Habitat Directive, the species has a relatively wide geographical distribution.<sup>5</sup> European legislation requires that the so-called “favorable conservation status” of the species be guaranteed within the European territory.<sup>6</sup>

In Europe, the Natterjack toad dwells from south Sweden to the southern tip of Spain and from Great Britain to Belarus. Despite this wide geographical distribution, the species is considered a threatened species in many European countries such as Germany, England, and Latvia. The Netherlands are situated near the center of the biogeographical distribution of the Natterjack toad. Because the Dutch Natterjack toad population is also relatively large, it is considered to be an important core population.<sup>7</sup> But this population has decreased by forty percent since 1950, mainly due to the disappearance of a suitable habitat. The Dutch Society for Reptiles, Amphibians, and Fish Conservation (RAVON)<sup>8</sup> concluded that the Natterjack toad in the Netherlands

---

4. See generally Ronald Waterman, *Sustainable Development by Building with Nature*, <http://www.ronaldwaterman.com/page10/page10.html> (accessed Apr. 17, 2009) (describing the concept of Building with Nature as a spatial solution to the scarcity of space); Environmental Law Institute, *The Status and Character of In-Lieu Fee Mitigation in the United States* (Environmental Law Institute 2006) (explaining the functions and status of in-lieu fee mitigation programs in the United States); Environmental Law Institute, *Banks and Fees: The Status of Off-Site Wetland Mitigation in the United States* (Environmental Law Institute 2002) (explaining the methods and purposes of compensatory mitigation).

5. Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 92/43/EEC (May 21, 1992) [hereinafter *Council Directive 92/43/EEC*].

6. *Infra* pt. II(A)(1) at *Key Terms of the European Habitat Directive*.

7. A.M. Spitzen-van der Sluijs, R. Zollinger & A.C. van Rijsewijk, *Ecologisch Onderzoek aan de Rugstreeppad in de Noordoostpolder* 49 (Stichting RAVON 2007).

8. RAVON (Reptielen Amfibieën Vissen Onderzoek Nederland) is a Netherlands-based ecological research organization in Nijmegen and Amsterdam that focuses on the preservation of amphibians, reptiles, and fish in the Netherlands. RAVON, *About Us*,

should be classified as “vulnerable”<sup>9</sup> according to the International Union for Conservation of Nature (IUCN) Red List criteria.<sup>10</sup>

It is clear that the Natterjack toad does not have a favorable conservation status. Moreover, conservation of the Natterjack toad in the Netherlands will require measures aimed at developing the population and will require paying close attention to the species in management and construction activities.

### B. Protection of a Pioneer Species

The dilemma with the Natterjack toad is not only its status as strictly protected, but also its wide distribution and potential for local abundance. The Natterjack toad is an opportunistic pioneer species that is capable of rapidly utilizing new habitats on bare soil.<sup>11</sup> Development time of the eggs and larvae is short, and the metamorphosed toads can potentially disperse over large distances. Due to reduced natural rejuvenation processes, such as erosion by wind and water, however, the original habitats of the Natterjack toad have diminished. Moreover, a large proportion of the available pioneer habitats are found in urban development areas. This means that the Natterjack toad will rapidly invade construction sites, using the newly created pools and heaps of sand as an environment to reproduce during the night and seek

---

<http://ravon.nl/En/Aboutus/tabid/377/language/nl-NL/Default.aspx> (accessed Apr. 17, 2009).

9. See *The IUCN Red List of Threatened Species*, 9–11, [http://www.iucnredlist.org/static/categories\\_criteria\\_3\\_1](http://www.iucnredlist.org/static/categories_criteria_3_1) (accessed Apr. 23, 2009) (detailing the criteria underlying a “vulnerable” classification). A species is considered vulnerable if it is likely to become endangered unless the circumstances threatening its survival and reproduction improve. *Id.*

10. R.C.M. Creemers, J.J.C.W. van Delft & A.M. Spitzen-van der Sluijs, *Basisrapport Rode Lijst Amfibieën en Reptielen* (Stichting RAVON 2007); See *Global Amphibian Assessment*, <http://www.iucnredlist.org/details/54598> (accessed Apr. 18, 2009) (illustrating the Natterjack toad’s present Red List Category classification of “least concern”). The IUCN is the oldest and largest environmental association in the world. IUCN, *About IUCN* 1, <http://www.iucn.org/about/index.cfm> (accessed Apr. 18, 2009). The IUCN supports scientific research, manages global conservation projects, and works with governments and businesses across the world to develop and implement environmental policies. *Id.*

11. B. Banks & T.J.C. Beebee, *Climatic Effects on Calling and Spawning of the Natterjack Toad Bufo Calamita: Discriminant Analyses and Applications for Conservation Monitoring*, 36 *Biological Conservation* 339 (1986); J.J. Boomsma & J.W. Arntzen, *Abundance, Growth and Feeding of Natterjack Toads (Bufo Calamita) in a 4-Year-Old Artificial Habitat*, 22 *J. of Applied Ecology* 395 (1985).

refuge during the day.<sup>12</sup> Therefore, companies that undertake construction projects must often take specific measures to prevent the species from moving into the project area.<sup>13</sup> Since the toad is resourceful, these measures may not always be successful. Consequently, the presence of a strictly protected species in a construction site may cause the project to be seriously delayed. Recent decisions of Dutch courts show that the Natterjack toad requires close attention in urban developments.<sup>14</sup>

### C. The Northeast Polder

One particular initiative dealing with the Natterjack toad problem has been carried out in the Northeast Polder.<sup>15</sup> The Natterjack toad has a wide distribution in this polder and can be found almost anywhere in the area.<sup>16</sup> However, because the population consists of many small and often isolated subpopulations, reproduction is not optimal, mortality is high, and habitat availability is not sufficient for a viable population. Therefore, RAVON concluded that the species currently does not have a favorable conservation status in the Northeast Polder.<sup>17</sup>

The Northeast Polder was reclaimed from the sea in 1942, largely for agricultural uses such as greenhouse cultivation, flower bulbs, fruit farming, agriculture, and cattle breeding.<sup>18</sup> Due to highly dynamic agricultural management, the landscape is

---

12. Breeding sites for the Natterjack toad are typically located in very shallow water. BBC Science & Nature, *supra* n. 1, at 2. The male toads arrive first and call to the females. *Id.* The female toads may lay 3,000 to 4,000 eggs which hatch within five to eight days. *Id.* They spawn a string of eggs that sit in a double strand and, after a few days, settle into a single strand. *Id.* Metamorphosis can take from five to fifteen days, depending on temperature. *Id.*

13. Gerard F.J. Smit, *Urban Development and the Natterjack Toad (Bufo Calamita)—Implementation of the Habitats Directive in The Netherlands*, Proceedings of the 113th Congress of the Societas Europaea Herpetologica 167 (2006).

14. Ct. of Justice Amsterdam (July 25, 2002); Dutch Admin. Jxn. Dept. of the Council of St. (June 30, 2004).

15. The Northeast Polder is a low-lying tract of land which was formed by draining a former inland sea. UNESCO, *Noordoostpolder (Northeast Polder)* 1, <http://whc.unesco.org/en/tentativelists/478/> (accessed Apr. 18, 2009). The planning behind the development of the polder concentrated on the establishment of a productive agricultural landscape. *Id.*

16. Approximately seven percent of the Dutch population resides in the Northeast Polder, accounting for four percent of the national surface (59,620 hectare). *Id.*

17. A.M. Spitzen-van der Sluijs, R. Zollinger & A.C. van Rijsewijk, *supra* n. 7, at 52.

18. A.J. Wiggers, *Het Ontstaan van de Noordoostpolder* 6 (Tjeenk Willink NV 1955) (adding that at least seventy-five percent of the Northeast Polder is used for agriculture).

large and open. An extensive system of ditches and waterways is used to drain and irrigate the polder optimally.

Although the polder was created for economic purposes, the Natterjack toad has adapted to the landscape; the resulting situation is a specific example of the potentially sharp conflict between ecology and economy. Many plans for building houses, barns, industrial areas, and new infrastructure in the polder exist. Because the toad might be present anywhere in the polder, current legislation requires that every activity be examined regarding its effect on the sustainable maintenance of the population. However, many stakeholders in the polder consider this too costly, too time-consuming, and even unnecessary. Maintenance of the legal regulations in this situation is an almost impossible task. As a result, the presence and protected status of the Natterjack toad are often ignored, leading to:

- Frequent violations of legislation;
- Suboptimal conservation situations for the Natterjack toad; and
- Problems with spatial developments.<sup>19</sup>

This situation creates great uncertainty about the possibilities for conservation of the Natterjack toad and for economic development. It is clear that application of conservation-minded legislation is counterproductive here. Therefore, conservation of the Natterjack toad in the Northeast Polder requires a new approach.

#### D. A Species Management Plan

Effective conservation of the Natterjack toad in the Northeast Polder means that in day-to-day practice, the goals of nature protection legislation must be met while ensuring that economic developments are not unnecessarily constrained. The approach chosen to tackle this challenge for the Natterjack toad in the Northeast Polder involves creating a species management plan (SMP). The SMP should serve as a framework to guarantee the favorable

---

19. It is the Authors' opinion that problems with spatial developments have occurred because the proper ecological and legal studies have not yet been implemented.

conservation status of the Natterjack toad, making costly, time-consuming ecological research and dispensation procedures unnecessary. The SMP needed to be applied on a voluntary basis by the various stakeholders in the region; therefore, it was considered crucial that all stakeholders would be cooperating in the process from the start. Furthermore, a very keen anticipation of legal obstacles was considered crucial.

This paper deals with the following questions:

- (1) What are the requirements and possibilities for the SMP in terms of legal obligations and stakeholder involvement?
- (2) How are legal, ecological, economic, and stakeholder involvement issues implemented in the SMP?
- (3) What are the advantages and disadvantages of integrating economic development and species protection by means of a SMP?
- (4) What are the key success factors and pitfalls of this approach?

Part II deals with the legal obligations and stakeholder involvement. Part III presents the implementation of the relevant issues in the SMP. Part IV evaluates the SMP's advantages and disadvantages while forming conclusions concerning its key success factors and possible pitfalls. Finally, implications for the legal framework are briefly discussed.

## *II. LEGAL, ECOLOGICAL, AND STAKEHOLDER CRITERIA FOR THE MANAGEMENT PLAN*

### *A. The Legal Framework*

#### *1. European and Dutch Legislation*

Any initiative to solve the aforementioned problems will have to meet the goals formulated in the legal framework. The framework for nature conservation legislation within the European Un-

ion, formed by the Bird Directive (BD)<sup>20</sup> and the Habitat Directive (HD),<sup>21</sup> contains obligations for the member states concerning both species protection and area protection. Species protection has been implemented into Dutch law by means of the Flora and Fauna Act (FFA);<sup>22</sup> area protection has been implemented in the Dutch Nature Protection Act of 1998 (NPA).<sup>23</sup> For this comment, only the species protection component is relevant because area protection regulations do not apply to the Natterjack toad in the Northeast Polder.

The aims of the HD are: (1) to help ensure bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies; and (2) to maintain or restore favorable conservation statuses for natural habitats and species of wild fauna and flora of community interest.<sup>24</sup>

European legislation emphasizes ecological-scientific underpinning of population sizes, selection of species and areas, and evaluation of impacts of human activities on protected species.

#### KEY TERMS OF THE EUROPEAN HABITAT DIRECTIVE (ARTICLE 1)

*Habitat of a Species:* An environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle.

*Favorable Conservation Status:* The conservation status of a species will be taken as “favorable” when:

---

20. Council Directive on the European Directive on the Conservation of Wild Birds 79/409/EEC (Apr. 2, 1979) (available at <http://eur-ex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:PDF>) [hereinafter *Council Directive 79/409/EEC*].

21. Council Directive 92/43/EEC, *supra* n. 5, at 2.

22. The Dutch Flora and Fauna Act (FFA) regulates the protection of plant and animal species in the Netherlands and essentially prohibits activities which may be harmful to protected species. MinLNV, *Nature Conservation in the Netherlands*, [http://www.minlnv.nl/portal/page?\\_pageid=116,1640408&\\_dad=portal&\\_schema=PORTAL&p\\_document\\_id=111079&p\\_node\\_id=298981&p\\_mode=BROWSE](http://www.minlnv.nl/portal/page?_pageid=116,1640408&_dad=portal&_schema=PORTAL&p_document_id=111079&p_node_id=298981&p_mode=BROWSE) (last updated June 18, 2008).

23. The Nature Protection Act (NPA) regulates the protection of high conservational regions and implements restrictions on projects and activities in such areas that may harm the area's integrity and conservation objectives. NOFDP, 1.3.5 *Ecology*, 1, <http://nofdp.bafg.de/servlet/is/13256/?lang=de&highlight=regulation>, (accessed Apr. 20, 2009).

24. Council Directive 92/43/EEC, *supra* n. 5, at 2.



- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The regulations concerning species protection of the HD are implemented in the Dutch FFA.<sup>25</sup> This Act aims at a general level of species protection and hopes to conserve genetic variability and species richness. The ultimate goal is conservation and restoration of the variability of wildlife, recognizing species as functional elements of ecosystems. Moreover, the opening words of the FFA explicitly mention the intrinsic value of animals as a reason for protection efforts.<sup>26</sup>

The FFA emphasizes passive protection of species by means of a general prohibition scheme.<sup>27</sup> Special attention is paid to threatened species and species for which the Netherlands has international responsibility. Article 1 of the FFA concerns all ontogenetic stages of wild animals and plants.<sup>28</sup> Article 2 gives the obligation to take all necessary measures reasonable to prevent species' habitats from suffering from human activities.<sup>29</sup>

Provisions applying to protected species mainly prohibit deliberate disturbance of animals or their habitat, including removing plants from their habitat; and killing, catching, owning, and trading animals.

In order to determine whether the FFA will have consequences for an activity, a survey concerning the presence of protected species must first be carried out in the area affected by the

---

25. Netherlands Bulletin of Acts and Decrees § 402, *Flora- en Faunawet* (May 5, 1998) (available at <http://www.eu-wildlifetrade.org/pdf/natleg/FloraFaunawetn1.pdf>) [hereinafter *Flora and Fauna Act*].

26. *Id.*

27. *Id.*

28. *Id.* at art. I.

29. *Id.* at art. II.

human activities. Articles 10 and 11 forbid the disturbance of individual animals and their nests, lairs, reproduction sites, or resting places, respectively.<sup>30</sup> If a provision is offended, one must apply for dispensation on the basis of Article 75, unless an exemption regulation applies.<sup>31</sup>

Dispensation from the requirements is possible only if the “favorable conservation status” of the species is not jeopardized.<sup>32</sup> The favorable conservation status is related to the population level.<sup>33</sup> Although the prohibition provisions for protected species primarily focus on individuals, the acceptability of human activities is based on population effects.<sup>34</sup> Exemption regulations are given by the Exemptions Decision.<sup>35</sup> The Exemptions Decision considers four different species categories with an increasing level of protection:

- (1) protected species of mammals, reptiles, amphibians, ants, snails, and vascular plants.<sup>36</sup>
- (2) protected species in the Red Data Lists category “near threatened,” including mammals, reptiles, amphibians, fish, butterflies, beetles, crustaceans, and vascular plants;
- (3) species listed in Annex IV of the HD and classified in the Red Data Lists as “extinct in the wild in the Netherlands,” “critically endangered,” “endangered,” or “vulnerable,” including mammals, reptiles, amphibians, fish, butterflies, dragonflies, damselflies, mollusks, and vascular plants. This category applies to the Natterjack toad because the species is listed in Annex IV of the HD. And;
- (4) bird species.<sup>37</sup>

---

30. *Id.* at arts. IX, X.

31. *Id.* at art. LXXV.

32. *Id.*

33. *Supra* pt. II(A)(1) at *Key Terms of the European Habitat Directive*.

34. Reiner J.W. de Nooij, Rob S.E.W. Leuven, H.J. Rob Lenders, Tycho E.P.A Lam & Steven Pieters, *Relating the Ecological and Legal Frameworks for Nature Conservation in Europe*, 11 *J. Intl. Wildlife L. & Policy* 1, 63 (Mar. 2008).

35. Netherlands Bulletin of Acts and Decrees § 501 (Sept. 10, 2004).

36. *The IUCN Red List of Threatened Species*, *supra* n. 9. These species are classified in the Red Data List as “least concern.” *Id.* Red Data Lists are documents that classify species into different categories of threat based on geographical distribution. *Id.*

There are two kinds of exemptions for the obligation to apply for dispensation:

- (1) a generic exemption for species in category 1;
- (2) an exemption provided that one acts in accordance with an approved code of conduct for species in categories 2, 3 and 4.<sup>38</sup>

The exemption based on a code of conduct—approved by the Ministry of Agriculture, Nature Management, and Fisheries—does not apply to category 3 species in cases of so-called spatial developments.<sup>39</sup> To acquire dispensation for species of category 3, a more extensive assessment is required in which it must be shown that the favorable conservation status will not be jeopardized, alternatives for the activity do not exist, and the activity complies with a limited list of interests.

The code of conduct must explain why particular activities it describes do not have substantial effects on protected species. Working with the code of conduct is an implementation of the so-called “acting carefully” principle, which prevents substantial influence on protected species. The acting carefully principle weighs an activity’s effects on the protected species’ conservation status.<sup>40</sup>

The instrument called “code of conduct” was, in many ways, a source of inspiration for the approach chosen for the SMP. The SMP also describes a way of dealing with protected species that ensures their favorable conservation status and is also aimed at preventing unnecessary legal procedures. However, codes of conduct apply to a large range of species, the entire Netherlands, and are developed for specific types of activities. The SMP, on the other hand, was developed for one particular species, one region, and a broad variety of activities and related sectors.

---

37. Bird species are in a special exemption category because of slightly deviating provisions in the Bird Directive. *Council Directive 79/409/EEC*, *supra* n. 20.

38. Dutch Ministry of Agriculture, Nature, and Food Quality, *Buiten aan het werk? Houd tijdig rekening met beschermde dieren en planten!* (2005).

39. These spatial developments, such as construction and excavation, change the physical structure of the landscape and potentially destroy species’ habitats.

40. *Supra* pt. II(A)(1) at *Key Terms of the European Habitat Directive*.

## B. Interpretation and Implementation of Legal Requirements

A conservative interpretation and application of the FFA is not compatible with the SMP approach. The FFA is clear: when any of Articles 8 to 12 are violated, dispensation is required.<sup>41</sup> However, these regulations do not function for the Natterjack toad in the Northeast Polder. Some legal obstacles will remain, but given a strong ecological foundation, the SMP has a reasonable chance of judicial acceptance when the SMP is supported by relevant stakeholders and the environmental non-governmental organizations (NGOs).

Representatives of the Ministry of Agriculture, Nature Management, and Fisheries (formally responsible for maintaining regulations and providing dispensation) recently acknowledged the problem with the Natterjack toad in the Northeast Polder. They stated that broad interpretations are possible if the SMP is carefully aligned with the dispensation procedure of the European HD, as well as the legal principles described in Part II(A). They also stated that when it is clear that the favorable conservation status of the population in the Northeast Polder is guaranteed and sufficiently monitored, it will be possible to:

- compensate for negative effects on local subpopulations by creating new habitats at different locations;
- use a dynamic vision on habitat availability—by creating temporary habitats for example; and
- temporarily allow a decrease of the regional population.

The primary focus of the SMP is on the goal of the legislation: guaranteeing the favorable conservation status of the species of concern. Other focal points within the SMP are the “duty to care” and the “acting carefully” principles. The implementation of such principles is aligned with the FFA, the Exemptions Decision, and the HD.

---

41. Ch.W. Backes, *Advies Juridische inpassing “natuurinclusief ontwerpen.”* Universiteit Maastricht 16 (2008).

### *1. Duty to Care*

The “duty to care” principle described in Article 2 of FFA is the obligation to take all necessary measures reasonable to prevent species living in the wild and their habitats from suffering from human activities. It was implemented in the SMP by developing management protocols for the Natterjack toad to be used during the planning and execution of landscape management and spatial developments measures.

### *2. Acting Carefully*

The “acting carefully” principle calls for conduct to prevent substantial influence on a protected species.<sup>42</sup> The SMP agreements are made with every involved stakeholder detailing how they will implement the acting carefully principle in their daily activities.

As described in Part II(A), an activity has no “substantial effects” if resistance or resilience of a species is sufficient for maintaining the favorable conservation status.<sup>43</sup> The SMP guarantees the prevention of substantial effects by assuring that the population is developed to a level that is resilient enough to withstand reasonably foreseeable negative impacts. Ecological requirements for a resilient population are derived from ecological studies. Furthermore, an inventory of existing activities and plans have been made and guidelines for acting carefully in management and spatial developments have been incorporated in the SMP.

### *3. Dispensation Procedure of the Habitat Directive*

Dispensation can be obtained when there are no other satisfactory solutions for the intended activity, the favorable conservation status will not be threatened, and the activity fits within a list of specified interests. These interests are described in Article 16 of the HD.<sup>44</sup> Public health and safety and other imperative reasons for overriding public interest are mentioned. The SMP

---

42. *Supra* n. 18.

43. *Supra* pt. II(A)(1) at *Key Terms of the European Habitat Directive*.

44. *Council Directive 92/43/EEC, supra* n. 5.

makes clear how activities carried out by stakeholders in the Northeast Polder fit within the interests mentioned in the HD.

### C. Stakeholder Involvement

The development of the SMP was aimed to involve all relevant stakeholders in such a way that they would actively contribute to and support the management plan. In order to achieve this goal, a joint planning process was started with the relevant SMP stakeholders in the Northeast Polder. These stakeholders include: the Province of Flevoland; the Ministry of Agriculture, Nature Management, and Fisheries; two municipalities; the water board; two farmer organizations; three nature management organizations; one NGO concerned with nature and landscape development; RAVON; and the Chamber of Commerce.

To insure their support for and contribution to the SMP, the stakeholders were involved in the process from the beginning. They were approached with requests to participate in a joint planning process aimed at creating a better situation for all. The first step consisted of meetings with each stakeholder, in which the concept of the SMP was explained. They were asked to state which prerequisites should be met by the SMP in order to be fully compatible with their interests and activities.

The Province wants to create space for development. Its activities relevant to the Natterjack toad mainly concern reconstruction of canals, development, and improvement of infrastructure. The water board's main interests are maintaining the water tables in the Polder, preventing the Polder from inundations, and safeguarding the water quality. Reconstruction of canals is also an important activity. Management of water levels and vegetation in the network of ditches is crucial.

These goals put important boundary conditions onto the SMP. The municipalities want to create space for building houses and industrial parks. The spatial development plan must fit well within the SMP. The farming organizations emphasized their commercial interests. The SMP must provide financial compensation for investments made by farmers to comply with the plan.

Concise, practical protocols for dealing with the Natterjack toad were also considered very important. Furthermore, the SMP should not lead to increased financial or administrative burdens.

Nature and landscape management organizations stated that the SMP should provide clear guidelines for dealing with the Natterjack toad in their activities, a sound monitoring plan, and a financial plan. RAVON stated that the SMP should make certain that a number of key factors (such as vegetation management and management of the water tables) are influenced in such a way to enhance the population of the Natterjack toad. The main interest of the chamber of commerce is to prevent restraints on future economic developments in the Polder.

A broad variety of interests exists among the stakeholders. Most stakeholders emphasized clear guidelines for dealing with the Natterjack toad in their activities and sound monitoring and financial plans. This input was used to create a document that served as the basis for a meeting of all stakeholders. During the meeting, stakeholders exchanged viewpoints and discussed remaining obstacles.

After the meeting, the Authors created a concept version of the SMP. Then, the Authors discussed this concept with each stakeholder separately in order to negotiate remaining issues. In these meetings, each stakeholder agreed on what their contribution to the implementation of the SMP would be. After the meetings, the SMP was finalized. Once representatives of each stakeholder reviewed the SMP and completed the final remarks, the SMP was sent to the board of each organization for approval.

### *III. SPECIES MANAGEMENT PLAN DESIGN*

#### *A. Structure and Goals*

To comply with legal requirements, the favorable conservation status was considered crucial. Also important were the implementation of the duty to care principle, the acting carefully principle, and prevention of substantial effects.

The Authors developed two major lines.<sup>45</sup> First, the Authors constructed a protocol for management and spatial developments measures in order to make sure that these measures would be carried out in a way that would prevent negative impacts on the population. Second, the Authors designed measures for develop-

---

45. See Figure 1.

ing the population of the Natterjack toad and its habitat to a level such that spatial developments would not compromise the conservation status of the species.

The measures are required to lead to:

- (1) a doubling of the distribution area of the Natterjack toad in the Northeast Polder, measured by the number of occupied square kilometers;<sup>46</sup>
- (2) an increase in the density of groups of calling males and the number of males per calling group; and
- (3) an increased success rate of reproduction.<sup>47</sup>

The goal and measures are underpinned by an ecological study.<sup>48</sup>

## B. Protocol for Existing Management and Spatial Developments

### 1. Existing Management

Management of infrastructure, farms, nature areas, and the water system must be done carefully.<sup>49</sup> This means that through the careful planning of measures in space and time, adverse effects on existing habitats will be prevented. For example, terrestrial habitats will be spared during the hibernation periods of October to the end of March. Removing vegetation in aquatic habitats such as ditches and ponds must not occur during the reproductive season of April through July.

Ecological research demonstrates that management of the water system, particularly management of vegetation and local network water levels, is crucial to the appropriate aquatic habitat.<sup>50</sup> Aquatic habitats must be kept in a pioneer stage. The water

---

46. A common way to express species presence on maps is by using a grid, formed by cells of one square kilometer. Uwe Deichmann, Deborah Balk & Greg Yetman, *Transforming Population Data for Interdisciplinary Usages: From Census to Grid*, 1, <http://sedac.ciesin.columbia.edu/gpw-v2/GPWdocumentation.pdf> (accessed Apr. 20, 2009).

47. A.M. Spitzen-van der Sluijs, R. Zollinger & A.C. van Rijsewijk, *supra* n. 7, at 53.

48. *Infra* pt. III(c) at *Ecological Studies for Species Management Plan*.

49. See Figure 2.

50. *Infra* pt. III(c) at *Ecological Studies for Species Management Plan*.



level in the ditches should be maintained at a minimum of ten centimeters between the beginning of April and the end of July. Various technical possibilities are specified in the SMP.

## *2. Spatial Developments*

Spatial development projects aimed both at construction of buildings and infrastructure as well as reconstruction of the water system and nature areas, will be carried out using two important concepts: (1) nature-inclusive design; and (2) careful execution.<sup>51</sup> Nature-inclusive design means that measures aimed at preventing habitat destruction and creating new habitat are an integral part of every plan for spatial development, and prescribes the following guidelines:

- Create new habitat within three kilometers of existing occupied habitat, and make sure that no large barriers for migration by the Natterjack toad are present;
- Include management measures;
- Make sure that there is a positive net surface area by developing new habitat before old habitat is destroyed; and
- Proactive habitat creation measures can be taken anywhere in the polder but must be realized before the existing habitat is destroyed.

Careful execution ensures that habitat destruction is prevented, that individual toads are treated carefully, and that individual toads are transferred to newly created habitats before the destruction of the existing habitat.

These guidelines are also implemented in the existing procedures for spatial planning. The municipalities, which are formally responsible for spatial planning, will give project developers the obligation to create nature-inclusive designs and plans for careful execution.

---

51. See Figure 3.

### C. Measures for Developing the Species Population

The second line within the SMP concerns measures for developing the species population to a level that is sufficiently large for guaranteeing the favorable conservation status.<sup>52</sup> The SMP incorporates the following general guidelines:

- New habitats must be created and maintained at less than three kilometers from each other without migration barriers. For the Northeast Polder, this means that a minimum of thirty-six habitat areas must be developed and maintained;
- The exact size, location, and design of these new habitat areas can be varied and should be adapted to each situation; and
- A complete habitat consists of reproductive waters and terrestrial habitats.<sup>53</sup>

The design and management was specified for aquatic and terrestrial habitats.

#### **ECOLOGICAL STUDIES FOR SPECIES MANAGEMENT PLAN<sup>54</sup>**

*Research Goals:* To be able to define the conditions that should be met to obtain and preserve a viable population a preliminary study was done in 2004 and in 2005 and an extensive ecological study was conducted in 2006 and in 2007. These studies provided the basic conditions and advised the proper measures that need to be taken in time as well as in space, to obtain or preserve a viable population Natterjack toads in both the agricultural and urban landscape of Flevoland.

---

52. See Figure 4.

53. A.M. Spitzen-van der Sluijs, R. Zollinger & A.C. van Rijsewijk, *supra* n. 7, at 53.

54. A.C. van Rijsewijk, W. Bosman & R. Zollinger, *Gebiedsdekkend onderzoek naar het voorkomen van de ruggstreppad (Bufo calamita) in de provincie Flevoland* (Stichting RAVON 2005); A.M. Spitzen-van der Sluijs, *Literatuuronderzoek ruggstreppad* (Stichting RAVON 2006); A.M. Spitzen-van der Sluijs, R. Zollinger & A.C. van Rijsewijk, *supra* n. 7, at 53.

*Methods:* In 2006 the terrestrial and aquatic land use of the Natterjack toad was studied with the aid of transmitters. Additionally transect counts were conducted in 2006 as to gain insight in the characteristics of their reproductive waters and in 2007 a specific study was done on the reproductive success rate of Natterjack toads. Fifteen toads (9 males and 6 females) were collected from the study area and replaced at their exact location. Toads were collected at 4 batches: in April (5), May (5), August (3), and September (2). Implantable transmitters were inserted into the abdominal cavity. The transmitter life span was approximately 3 months. The animals were located nearly daily and their positions mapped. At the end of the study, the transmitters were removed and the toads released. From the data information on the habitat use of the toads was calculated. All procedures were performed in compliance with relevant laws and institutional guidelines and approved by an appropriate institutional committee. In 2006 calling males were inventoried every other week, at night, along three fixed routes. Day characteristics (vegetation, water quality etc.) of the reproductive water, as well as from nearby water where no calling was recorded, were noted. In 2007, the reproduction process of Natterjack toads was intensively monitored at 33 locations. From the data, habitat characteristics for successful reproduction were distilled.

*Major Conclusions:* The Natterjack toads showed a preference for reproductive waters and its banks. Landscape resistance was highest for arable land. Ditches take up a big majority of all the freshwater surface area. Therefore the majority of the Natterjack toad population (75%) occurs in ditches. Reproduction was successful at 76% of the monitored sites, with a lower success rate in ditches than in other water types. Barns and sheds are essential for the hibernation of the Natterjack toad. Three arterial roads form effective barriers for the toads, dividing the study area in three parts and by this in three separate populations.

Currently, there are no guarantees that the population of the Natterjack toad in the Northeast Polder is viable and therefore the situation for the toad is indicated as “*moderately unfavorable*.” In order to obtain a viable population, focus should be on maintenance and design of ditches. This way, a lot of result with relative little effort can be gained, as the water system is so extensive and technical measures can

be taken easily. Additionally, specific sites (aquatic and terrestrial) should be developed and maintained especially for the Natterjack toad in order to obtain a more or less stable population size.

#### D. Guarantees

##### *1. Project Group*

In order to provide guarantees for implementation of the SMP in the activities of the stakeholders, a project group of all stakeholders will be created. This project group will convene semi-annually and will monitor the progress of the SMP implementation process and the population of the Natterjack toad. The agenda will consist of the following items:

- The establishment of a short-term goal;
- Evaluation of the progress of implementation of the SMP;
- Evaluation of the development of the population of the Natterjack toad; and
- Discussion of successes and problems with the implementation of the SMP and ways to solve problems.

##### *2. Monitoring Program*

With the monitoring program, all newly created habitats will be surveyed once every two years. Every five years, the whole polder will be surveyed on the level of square kilometers. The monitoring of newly created habitats will answer the following questions:

- (1) Are newly created habitats actually used by the Natterjack toad?
- (2) In what densities is the Natterjack toad present in these habitats?

The monitoring of the entire polder must answer the following questions:

- (1) Has the distribution area, expressed in a number of occupied square kilometers, doubled?
- (2) Have the density of groups of calling males and the number of males per calling group increased?

### *3. Financial Aspects*

Activities undertaken as a result of the SMP are adaptation of existing protocols for management and spatial developments, creation of new habitats, management of new and existing habitats, and monitoring. The implementation of the protocol for existing management and spatial developments will be financed by each stakeholder involved. The measures for creating new habitats will be financed using a national budget for developing the countryside. The SMP will serve as a basis for obtaining subsidies for a master plan of the entire polder. Maintaining new habitats can be subsidized by a national program for management of natural areas and nature-friendly farming. Furthermore, companies will be invited to contribute to the SMP and to sponsor the creation and maintenance of new habitats for the Natterjack toad. Agreements on financing the monitoring program were not made during the process of creating the SMP; however, the province and municipalities have stated that possibilities for funding the program exist.

## *IV. EVALUATION OF THE SMP AND THE PLANNING PROCESS*

### *A. Strengths and Weaknesses of the SMP*

The SMP has the potential to be an instrument that saves time and money by preventing unnecessary legal procedures and creating better survival conditions. As such, it has economic as well as ecological advantages. Procedures for spatial developments will be streamlined, regional cooperation will improve, and many other species will profit from the SMP. The plan has a strong ecological underpinning and is supported by all relevant stakeholders in the region—a point that is important for acceptance by the national and European authorities. It is also a very

practical instrument, containing concrete guidelines for dealing with the Natterjack toad. Finally, the SMP provides a number of guarantees for its implementation and tries to ensure that the measures will have the desired effect.

Weaker aspects of the SMP include its dependence on the voluntary involvement of stakeholders and its concern for only one species. There is a fairly high chance that stakeholders will continue with their business as usual, without implementation of SMP. This will benefit economic goals but not the population of the Natterjack toad. It will also mean that the number of illegal activities will increase. On the other hand, the SMP is not a guarantee that action groups will not try to obstruct spatial development projects by appealing to existing legislation.

Meanwhile, because the SMP concerns only one species, the stakeholders will still need to apply for dispensation of all other protected species they encounter. They may be discouraged from continuing to implement the SMP.

### B. The Planning Process

Key success factors in the process relate to ecological information, legal aspects, and stakeholder involvement. The ecological basis was important throughout the process. RAVON carried out thorough studies in 2006, 2007, and 2008 concerning distribution, habitat use, and the reproduction success of the Natterjack toad in the Northeast Polder. Together with a literature study, this information provided the baseline knowledge required for determining the current conservation status as well as the conditions for a favorable conservation status of the Natterjack toad in the polder.<sup>55</sup>

Another success factor is the close alignment with goals and regulations in the relevant legislation. Important guiding principles are made operational. The plan is explicitly aimed at developing the population to a sustainable level and guaranteeing the favorable conservation status. The third category of success factors relates to the involvement of all stakeholders from the beginning and careful communication about all relevant issues. Con-

---

55. RAVON conducts many studies each year, which can be found on its Web site. RAVON, *supra* n. 8.

sensus about many issues such as the importance of creating a SMP, the current conservation status of the Natterjack toad, and reaching and maintaining a favorable conservation status had to be reached in every phase of the process. Finally, it has been very important that all stakeholders have been willing to cooperate with each other.

## V. DISCUSSION

Integration of economic and ecological considerations in day-to-day practice may provide new opportunities for reaching goals of nature protection legislation in combination with ongoing economic growth.<sup>56</sup> It also has the potential to improve the image of economic stakeholders as well as proponents of nature conservation. Furthermore, this approach can create more possibilities for nature development, and thus a higher biodiversity, because more parties are motivated to invest in nature-oriented measures. However, the feasibility and desirability of applying the new approach must be judged for each particular situation. It can be a valuable option for regions that harbor strictly protected species with a wide distribution.

There is also an important potential downside. A broad application of the concept behind the SMP presented in this paper may lead to a situation in which the legal background of the concept is eroded. The proactive approach presented in this paper makes maintenance of the law in the field superfluous and limits options for public participation by civilians who are not part of the set of stakeholders. It also undermines the ability of legal authorities to enforce measures that are obligatory from a legal point of view.

Before this point is reached, however, the concept and the SMP will first have to be approved by the Dutch Ministry of Agriculture, Nature Management, and Fisheries, and accepted by the European Commission. Since the SMP does not comply with a strict interpretation of the legal regulations, this will probably be a delicate and difficult process.

---

56. For a discussion on economics and ecology and their impact on conservation ecology, see Robert V. O'Neill, James R. Kahn & Clifford S. Russell, *Economics and Ecology: The Need for Détente in Conservation Ecology*, 2 *Ecology and Society* 1, art. 4, <http://www.ecologyandsociety.org/vol2/iss1/art4> (accessed Apr. 18, 2009).

*VI. FUTURE DEVELOPMENTS*

The Dutch Ministry of Agriculture, Nature Management, and Fisheries indicated early in the process that three possible pathways could be followed. The first option would mean that all the stakeholders in the Northeast Polder who committed themselves to the SMP would be free from the obligation to apply for dispensation. The second option would entail a generic dispensation for activities specified in the SMP. A third option, for the long run, would be the adaptation of the legal framework. This would mean general exemption for activities and regions where a SMP has been constructed. At the time this article was written, a request for a generic dispensation for activities specified in the SMP was being processed by the Ministry.

In any case, this process fits well with the general trend to develop a proactive approach to nature conservation in which conservation measures are integrated into economic activities. Regardless, this is probably the best option we currently have for reaching a situation where biodiversity considerations are integrated into a sustainable economy.