

# ***Darwin Initiative for the Survival of Species***

## ***Final Report***

### **1. Darwin Project Information**

Project title	European mink in Estonia
Country	Estonia
Contractor	Dept. of Zoology, Oxford
Project Reference No.	162/07/137
Grant Value	£ 161,215
Starting/Finishing dates	1 April 1998 – 31 March 2001

### **2. Project Background/Rationale**

The European mink is one of the most threatened species of mammal in Europe, and it does not occur outside this continent. Its numbers have seen a dramatic decline during the second half of the twentieth century, they are still going down rapidly, and it is now extinct in most countries where it used to occur. The species is still present in declining numbers in a few eastern European countries, and there is a small population in northern Spain.

In a previous Darwin Initiative Project (no. 162/04/072) this decline was addressed in Russia, Belarus and Estonia. In that project we studied the European mink, as well as several other closely related mammals living in the same semi-aquatic habitat, to establish the cause of the decrease in numbers; this involved the American mink, the polecat and the otter. Through observations on populations, through radio-tracking of individuals, habitat and diet analyses in one large study area in Belarus it was established that the European mink was the only species that was seriously declining, that this was not likely to be caused by pollution, persecution, decline of prey numbers, habitat change or disease, but that the most probable cause was direct aggressive interference by the newly introduced American mink. This also fitted in with observations of the disappearance of the (somewhat smaller) European mink over large areas coinciding with the arrival of the exotic and larger American mink.

The American mink has become established in Europe during the second half of the twentieth century, through escapes from mink farms as well as deliberate releases in eastern Europe for the fur-trapping industry. As American mink are settling throughout Europe, Asia and elsewhere, and as their habitat and prey selection is very similar to that of the European mink and the American species is aggressively dominant over the European one, the European mink is going extinct. Thus, in the first Darwin Initiative Project we described the sharp decline of an important species of carnivore, and we

identified the probable cause for this; we were also instrumental in enlarging and supporting a captive breeding unit for the species in Tallinn Zoo, Estonia.

The present project 162/07/137 was initiated in order to put this knowledge into practice and start a rescue operation, by establishing a population of European mink within its former geographical range, in an area from where American mink have been removed and can be kept out. We elected to do this in Estonia, for four main reasons.

- (i) The country has a unique captive breeding facility for European mink, in Tallinn Zoo (partly the result of significant support from the previous Darwin Initiative Project), with sufficient numbers of animals available for restocking a wild population.
- (ii) The Baltic islands off the Estonian coast offer an ideal opportunity for establishment, having good mink habitat, and a sufficient barrier against re-invasion from American mink after removal.
- (iii) In Mr Tiit Maran the country has someone with immense experience of captive breeding of European mink and of the species in the field, and who has the dedication that is necessary for a reintroduction project.
- (iv) Estonia has a good infrastructure to carry out such a conservation project, and widespread public interest to support it.

It was decided, therefore, to establish a wild population of European mink on the (second-largest) Estonian island of Hiiumaa, after removal of all the American mink present there. This would involve using the captive breeding facility in Tallinn Zoo, and our experience and knowledge of the European mink gained during Darwin Initiative Project 162/04/072.

We were aware that, even if totally successful, this rescue operation would provide only a small foothold for the species, but it was considered that it was the only practical option as an alternative to total disappearance of the species from the wild. The other possibilities that we considered were:

- (i) Maintaining the remaining individual European mink in the last area of Belarus where they still occurred in modest numbers. This would have involved continuous, intensive trapping of American mink for an indefinite period, in an area where infrastructure was inadequate and with opposition from powerful local trappers.
- (ii) Reintroducing in other parts of Europe. This would also have involved trapping out American mink for an indefinite period, and was considered impractical in the long term.
- (iii) Selective live-trapping of all mink along Russian rivers by professional trappers already operating there, who would release the European and kill the American species, and who would be rewarded by a premium system. Considered unworkable under Russian conditions.

It is hoped that after the establishment of a small population of European mink on a Baltic island, other island-introduction schemes will be taken up, starting off with the island of Saaremaa, in Estonia. Perhaps at some time in the future it will become possible to manage American mink populations with as yet unknown methods, after which European mink can again be reintroduced in other parts of their range.

### 3. Project summary.

#### 3.a. Objectives.

The purpose of the present project was to establish a population of European mink with long-term viability. To achieve this, the following objectives were set:

1. To select an island in the Baltic Sea with suitable habitat and of sufficient size to hold a population of at least 50 European mink, and far enough from the mainland to prevent immigration by American mink.
2. To obtain the substantial agreement and cooperation of authorities and local people for the establishment of a wild population of European mink on the island.
3. To remove any American mink from the island, if present.
4. To breed a number of European mink in captivity, with sufficient genetic diversity to establish a wild population.
5. To design a release method for the captive mink into the wild.
6. To release a group of founder individuals of European mink on the island in order to establish a breeding population.
7. To observe the released animals for a substantial period, in order to assess their establishment and possible problems.
8. To provide a set of management guidelines to safeguard long-term viability of the newly established European mink population.

Thus, the purpose and objectives of this project fit precisely into Article 8 of the Convention on Biological Diversity (which includes, amongst others: *Establish systems of protected areas with guidelines for selection and management; promote protection of habitats; restore degraded ecosystems and recovery of threatened species; control spread of alien species*).

The grant awarded by the Darwin Initiative was smaller than requested, therefore the aims of the project had to be reduced. However, we made no significant modifications to the original main objectives and operational plan. There was a one-year delay in the release of European mink on the island, for reasons explained below. This was documented in the 6-monthly and annual reports for the second year of the project, 1999, and it did not detract from the effectiveness of the project.

#### 3.b. Methodology and results.

The project involved

- obtaining public understanding and approval of the release,
- breeding of captive stock,
- removal of American mink,
- preparation of captive European mink for release, and the release itself,

- radio-tracking and observation of released mink,
- preparation of a management plan.

### 3.a.1. The site: Hiiumaa island.

The Estonian island of Hiiumaa, with its small offshore islands, is approximately 1020 km<sup>2</sup> and its nearest part is located about 21km from the mainland. It is the second largest island in the country, and was selected for our purposes because it was of manageable size given our resources, it had good potential habitat for European mink, it was sufficiently far from the mainland to prevent recolonization by American mink, and it is part of a Biosphere Reserve, the authorities of which appeared to support our aims (as did the other local inhabitants). The nearby larger island of Saaremaa is a potential site for future releases, once the methodology and management have been established on Hiiumaa.

The area was surveyed in 1997, before the beginning of the project, by two student-assistants from the Oxford Wildlife Conservation Research Unit (C. Philcox & A. Grogan), in order to assess feasibility, to quantify suitable habitat for mink, and to estimate numbers of American mink present and the effort required to remove these. They sampled 75 randomly selected riparian sites, found evidence of American mink in 19 and, using density figures from Belarus, it was estimated that there was adequate habitat for between 105-131 mink on the island, at that time populated by American mink. In the first year of the project a more detailed survey was carried out by Dr V. Sidorovich and one assistant, who estimated that there were 60 - 62 American mink present. Local hunters suggested that there were fewer than there had been in previous years, and that there had been a substantial recent decline in numbers (later we found that there were no more than 50). For the purpose of this project, all of the American mink would have to be removed.

Mink are animals that cause considerable public concern. On the one hand, in eastern Europe, they are exploited for their expensive fur, on the other hand they are considered to be a nuisance as predators of game and poultry. We needed to obtain local approval of our project, which involved trapping out one species of mink and replacing it by another, originally native species, and all this to be done by people from outside the community. Thus, from the very beginning, it was essential that we acted in consultation with local authorities and local hunters, who were initially distinctly wary of our intentions. We asked for their advice, and decided to employ them in the process of eradicating the American mink, which would provide them with much valued income, and it would involve them in the process. They agreed that if they themselves would be unsuccessful in removing the American mink, we could bring in expert trappers from outside.

We were advised to use a North American trap type used by Alaskan trappers, the 'Conibear' trap, which was also the only type that could be used legally without special permit. In the first year of the project we provided 15 local hunters each with 20 of these traps, purchased in the U.S.; the project paid for the expenses of the hunters, and a premium for each mink caught. After three months trapping in February 1999, only 12 American mink had been caught, and the trappers had lost interest as well as being

sceptical of the feasibility of removal of American mink. They agreed that our colleague Dr Vadim Sidorovich, from Belarus, could be brought in to carry out the work. Dr Sidorovich and assistant started trapping in March 1998, bringing with him his own padded leghold traps, and we obtained a special permit from the Ministry of the Environment. In five weeks he caught 38 mink, and during a further period of trapping in summer and late autumn of that year no more mink were caught. In autumn and winter of that year, using snow-tracking and traps set, there was no more evidence of American mink on Hiiumaa: the eradication had been totally successful after the removal of no more than 50 animals.

Involving the local hunters may appear to have been a waste of time and effort, and it did set the project back. However, it would not have been possible to obtain the essential local approval of our project if these hunters had not been given the opportunity to do the job, and they are now on our side. We had created vacant habitat for European mink, there had been considerable publicity in newspapers and radio-programmes, and Hiiumaa was ready for the release in 2000.

In the meantime the European mink captive breeding effort in Tallinn Zoo had been stepped up considerably, after a gradual build-up during the preceding DI project. With DI funds, new buildings with 40 large cages were set up in 1998 and 1999. The programme started with 12 unrelated founder individuals, and the captive population increased so that, in 1998, 66 young were born, in 1999, 32 were born and, in 2000, 32 cubs were born. Thus, for a release of European mink in 2000, well over 40 individuals would have been available. The European mink is a species that, unlike its American relative, is difficult to keep and breed in captivity, and this is a very considerable achievement by Tiit Maran, aided by only one assistant.

However, we decided to release only a relatively small number of animals in the first instance. There was no previous knowledge about the best release procedure, and about possible problems that released animals would experience; it was known from experience with releases of other species, such as the black-footed ferret in USA, that such knowledge is essential for success. Clearly, this could only be gained from close observation by radio-tracking of released animals, and in May 2000 the Estonian student Madis Podra spent two weeks in Oxford for general ecological training, and to learn radio-tracking techniques.

After the island of Hiiumaa was declared free of American mink early in 2000, we prepared the first ten adult European mink for the experimental release in June, in the presence of HK as well as local press and hunting dignitaries. This first release provided a large amount of information upon which further reintroductions can be built. Of the ten mink, five had been specifically trained for two months to live in an enclosure with natural features (including a pond, trees and other cover) and with live prey, five others were taken directly from their normal small cages with no natural features and used to prepared food. One animal of the experimental group died before release due to an unrelated cause. All animals were provided with a radio-collar, a sub-cutaneous microchip tag, and blood-samples were taken for later DNA analysis. Two European mink had been carrying dummy radio-collars for two months previously; there had been no noticeable effect on their behaviour and condition.

Upon release the animals were monitored with radio-tracking equipment on a 24-hour basis. There was no evidence for a difference in performance between the two groups. All animals

proved able to forage for themselves, their faeces contained remains of birds, frogs, fish, small mammals and insects, as expected, and they avoided predators and man, although on four occasions they had to be removed from farms (they killed some hens and one cat). After two months, three mink were still being followed, but radio contact with four of the animals had been lost, one had been shot, and one was killed by a predator.

In September 2001 eight more European mink were released on Hiiumaa, this time captive-born young of the year, released at the time of year when naturally such animals would disperse. All these animals were monitored by radio-tracking. They fared less well than the first batch; after one month, three of the eight had been taken by predators and one was shot, and contact with the others had been lost, mostly because of limited life-time of the radio-transmitters. During trapping (with large box-traps) in January 2001, three of the released animals were found to be alive and well, and evidence was found for at least a further two alive.

We could not be certain whether the difference in survival between the two release batches was caused by differences in age (the second batch being only young of the year, the first were adults) or by the time of year; we suspect age. However, whatever the cause, we decided that for further releases only adults in the early part of summer should be used. Therefore the next and major release (of approx. 30 European mink) should take place in the following spring 2001 rather than the autumn. This should be followed by releases of further, smaller groups of European mink in subsequent years, until it is estimated that the population is at maximum strength and reproducing.

Thus, the project has been successful in creating a habitat free of American mink, and we established the beginning of a population of European mink on Hiiumaa, with all arrangements in place for further releases in 2001 and continued monitoring by our Estonian partners, funded by a EU LIFE grant.

In addition, we have carried out a brief survey on the nearby and larger island of Saaremaa, which suggested that there are large areas of good habitat for European mink on that island as well. With the experience gained on Hiiumaa it will be possible for our Estonian partners to eradicate American mink from Saaremaa, and also install a population of European mink on the island.

The European mink project has had a high profile in Estonia, with much media attention (even a postage stamp was brought out with the image of a European mink). It has contributed substantially to the conservation awareness of Estonian people.

An in-depth and detailed management plan for the European mink is in preparation, and will be available from the Wildlife Conservation Research Unit in Oxford, from July 2001.

#### **4. Scientific, training and technical assessment.**

Although the original grant application included an important element of training of Estonian and Belarussian conservationists, this part of the project had to be almost entirely abandoned, as the funds allocated to the project were substantially smaller than requested. Thus, only one Estonian student (Madis Proda) took part in training in Oxford and in the field in Estonia; he was closely involved with the release project and is now

registered for an MSc degree in university in Tallinn, supervised by Tiit Maran.

The project also had no formal research component, but radio-tracking studies of the released European mink will provide useful results for future conservation activities. Amongst others, this study addressed the question of survival of released animals after different regimes of preparation before release. It was carried out by Tiit Maran and Madis Proda, in close consultation with the UK partners; details of the experiment were discussed in section 3, and an additional report is attached (Appendix ..). The results will be submitted for publication together with further results expected for 2001.

In addition, extensive use was made of the material available from the trapping of American mink; 41 carcasses were analysed by Lauren Harrington of the Oxford Wildlife Conservation Research Unit, and a report is attached (Appendix ..).

## **5. Project impacts.**

The purpose of the project was, very specifically, to (re)establish the European mink on the island of Hiiumaa, Estonia. The species is on the brink of extinction, and Hiiumaa is one place within the former geographical range of the species of sufficient size and with good mink habitat, from where it would be feasible, with given resources, to eradicate the main cause of decline of the European mink, that is the American mink, and keep it out.

The American mink has been removed from the island; the European mink has been introduced and is surviving there. However, time has been insufficient for the maximum possible number of animals to be introduced, and for the introduced animals to reproduce. Realistically, for a three-year project this could not have been expected. However, we are confident that, with all the mechanisms now in place and animals and funds available for further introductions, the project will continue to thrive. The Darwin Initiative project has laid the foundations for a successful reintroduction, and is leaving our Estonian partner with the expertise and a management plan that will enable them to bring this enterprise to an effective conclusion, and continue the maintenance of the ecosystem of which the European mink is part.

There have been two unexpected consequences of the reintroduction project. Firstly, in Estonia it received much more favorable publicity than was anticipated, and it has made a considerable impact on the understanding of a need for conservation amongst the Estonian people. An average person in Estonia now knows about European mink and approves of the conservation activities surrounding it, hence is more likely to approve of conservation in general. Secondly, from our contacts with people on Hiiumaa who, in general, are much involved with eco-tourism, we have noticed that they have become more aware that their natural resource is unique and they are proud of their European mink. We expect that before long the species will feature in tourist brochures.

The European mink project has a considerable future, with funds, expertise and enthusiasm available for further expansion and monitoring. Tallinn Zoo will continue to provide facilities for the mink breeding programme, and Tiit Maran and assistants will be fully involved in further activities on the islands of Hiiumaa and, later, Saaremaa.

Because the European mink is a rather high-profile conservation case, the Estonian partner has become a focus for international interest in it. We expect that this will endure for a long time, and that the project will provide lessons for many other conservation

activities elsewhere.

## 6. Project outputs

The original outputs planned for this project were designed for a larger grant than was allocated, and they had to be reduced. For instance, the original project had a large Belarussian component, and a substantial component for training and UK publicity, which were subsequently agreed to be abandoned. The new objectives were reflected in the updated Implementation Time Table as presented in the Annual Report, April 1999. The outputs in terms of the coding and format of the Darwin Initiative Standard Output Measures are quantified in Appendix II.

One important additional output was the production of two books, one as a management plan for the European mink problem by D.Macdonald, V. Sidorovich, T. Maran and H.Kruuk, and one as a treatise of the mink problem for a general readership, by H.Kruuk and D. Macdonald. Both are in the final stages of writing, and publishing preparations are on the way.

## 7. Project expenditure

### *Project expenditure during the reporting period*

<i>Item</i>	<i>Budget</i>	<i>Expenditure</i>
<i>Rent, rates heating lighting etc</i>		
<i>Postage, telephone, stationery</i>		
<i>Travel, subsistence</i>		
<i>Printing</i>		
<i>Conferences, seminars</i>		
<i>Capital items: vehicles, cages, traps</i>		
<i>Other: car maintenance, mink husbandry, specimen storage, radio transmitters, radio receivers</i>		
<i>Salaries</i>		
<i>Total</i>		

- Tabulate grant expenditure using the categories in the original application
- Highlight agreed changes to the budget
- Explain any variation in expenditure where this is +/- 10% of the budget

There is minor variance from 10%. I did not seek permission for this because it became apparent to me only retrospectively. This was because the accounting has proven difficult for several reasons: a) our expenditure has been largely in Eastern Europe (Estonia and Belarus) where not only language but also, particularly in rural areas, procedures are different, b) much of the expenditure has been against advances made to our in-country personnel, in which case it is only retrospectively that receipts are received and can be coded (a task made more tricky by them being in Belarussian or Estonian), c) unfortunately, the first two accounting periods of the project coincided with the complete change of all the Zoology Department's accounts and administrative staff, and a high turn over with the University's accounts staff, whereas the final year has



coincided with the as yet incomplete introduction of new accounting software and d) the subheadings used by our internal accountants, and therefore displayed by the monthly accounting software, are partly different from the subheadings used on this form. These factors have meant that compiling these accounts has been challenging but the saving grace has been that our Estonian senior collaborator – the recipient of the greatest proportion of the money -has maintained impeccable accounts and had them formally audited. Although his charity has used yet a third system of subheadings, we do have the externally audited statement that the £38,437.78 transferred to Estonia has been used on the project. He has also copied to us complete files of Estonian receipts. So, while there may be instances where the classification of given expenditures between travel, other and equip is inconsistent, I am fully confident in the overall budget. Indeed, Mr Maran's accounts show that the Estonian's spent £56,785.23 on the project, whereas our budget for them was only £38,437.78, so they have had to raise the shortfall, a task with which I have helped as far as possible.

## **8. Project operation and partnerships.**

Only one partner worked in Estonia with the Darwin Initiative Project, the Tallinn Zoo, as planned in the proposal. Tallinn Zoo was represented by Mr Tiit Maran, who was jointly involved with the UK partners in the initiation of this project. Mr Maran has been responsible for the Zoo's European mink breeding programme from its inception, he carried out the negotiations with government and local authorities and he has been involved in the implementation of the project at every stage. We were not involved with, nor were we aware of, similar projects in Estonia or the country's Biodiversity Strategy Office.

Internationally, the project was closely involved with the Institute of Zoology in Minsk, Belarus, in the person of Dr. Vadim Sidorovich. He had been a partner in the DI project that preceded the present one, and he was involved in the discussions leading to the Estonian mink project; with his field skills he also made an essential contribution to this project by carrying out the American mink removal.

The Estonian partner is still fully active in the continuing European mink project, which is made possible by a EU LIFE grant. The local community continues to be kept informed and is supporting the further efforts of Tallinn Zoo.

## **9. Monitoring and evaluation, lesson learning.**

To evaluate the success of the release of the European mink and, if necessary, manage the population in case of problems, it is essential that regular visual observations be made of a sample of European mink on Hiiumaa. At least for a further two years' radio-tracking of selected individuals need to be carried out and field-workers need to check for evidence of reproduction. All this will, for at least the next three years, be carried out under the aegis of the recently approved EU Life project, which will continue the work of the Darwin Initiative.

The development of the successful Hiiumaa (re)introduction of European mink will involve,

- i. the continued monitoring of a sample of released animals;
- ii. the continued stocking with captive-bred European mink until the population

- approaches carrying capacity;
- iii. the confirmation that the released animals are reproducing;
  - iv. probably, after about 10 years, a survey to confirm that the population is still present at carrying capacity.

It will be advisable, however, to start further reintroduction schemes on other Baltic islands (e.g., Saaremaa), well before the final assessment of the Hiiumaa project.

Until now, there has not been any external evaluation of the project, nor has this been scheduled; it is felt that the easy criterion for success, i.e. continued survival of a population of European mink, does not warrant the expense of external assessment.

One of the important lessons to be learned from our project is the importance of active involvement of members of the local community, even if such members do not have the expertise and abilities of external staff. We would not have been able to employ the services of foreigners in the mink removal project, if local people had not a) taken a keen interest in the well-being of the project, and b) had demonstrated to their own satisfaction and without condescension that they could not do this themselves.

## **10. Darwin Identity.**

The opportunity to display the Darwin Initiative Logo was limited, but it was fully utilized at the European mink breeding centre in Tallinn Zoo, and on the vehicle in the field. The Darwin Initiative was acknowledged in all publicity, such as press releases and radio-programmes. However, we found that in Estonia the emphasis was, inevitably, on the Estonian component of the project; to Estonians it was of interest that funding was provided from the UK, but we noticed that the name of the initiative under which such funding was provided was of lesser importance to conservationists, despite our frequent mention of the Darwin Initiative.

Nevertheless, the European mink reintroduction project, as part of the biodiversity conservation in Estonia, was recognized as a British-sponsored programme. Incidental contributions from other sources were important, such as that from Rotterdam Zoo and Denver Zoological Society, but the British Darwin Initiative was clearly visible as the mainstay source of funding, and at all levels people were aware of this.

## **11. Leverage.**

During the project some funding was attracted from other sources, especially for the captive breeding unit. This included £2500 from Rotterdam Zoo, £5825 from Denver Zoological Society, £5000 from the Prince Bernard Fund and £4300 from the Dutch Embassy in Tallinn (total £17,625).

UK staff encouraged and advised on applications for continued international funding to

succeed the Darwin Initiative project. Thanks to the great efforts of the Estonian partner, Tiit Maran, substantial funding was attracted from EU LIFE, for a project with an overall budget of Euro 373,454, very much a continuation of the Darwin project. In the quest for this LIFE bid, and using the leverage of the Darwin project, I was able to persuade the Peoples' Trust for Endangered Species generously and very helpfully to indicate that they were minded to make a matching contribution under the LIFE scheme.

## **12. Sustainability and Legacy.**

Clearly, the continued presence of European mink in a small part of their original range, where they have been reintroduced by the Darwin Initiative, will be the main legacy of the project. It is likely that this will lead to further releases elsewhere, as in the planned continuation of the DI project on the island of Saaremaa. The Estonian partner and its resources will continue to be involved in this as they were under the DI project, and the UK partners will continue to be involved with advice and support wherever possible. It is difficult to conceive of any more active legacy, from all partners concerned.

## **13. Value for money.**

The main results of this project have been

- i. the return of an important species of mammal to a country, thus establishing a major stronghold for its world-wide survival,
- ii. the use of this in attracting public sympathy for conservation in Estonia,
- iii. attracting substantial funds for continuation.

There should be little doubt that value for money has been excellent.

**Author(s) / Date**

## 2. Appendix I: Project Contribution to Articles under the Convention on Biological Diversity (CBD)

Please complete the table below to show the extent of project contribution to the different measures for biodiversity conservation defined in the CBD Articles. This will enable us to tie Darwin projects more directly into CBD areas and to see if the underlying objective of the Darwin Initiative has been met. We have focused on CBD Articles that are most relevant to biodiversity conservation initiatives by small projects in developing countries. However, certain Articles have been omitted where they apply across the board. Where there is overlap between measures described by two different Articles, allocate the % to the most appropriate one.

<b>Project Contribution to Articles under the Convention on Biological Diversity</b>		
<b>Article No./Title</b>	<b>Project %</b>	<b>Article Description</b>
<b>6. General Measures for Conservation &amp; Sustainable Use</b>		Develop national strategies which integrate conservation and sustainable use.
<b>7. Identification and Monitoring</b>		Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities which have adverse effects; maintain and organise relevant data.
<b>8. In-situ Conservation</b>	80	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
<b>9. Ex-situ Conservation</b>		Adopt ex-situ measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
<b>10. Sustainable Use of Components of Biological Diversity</b>		Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
<b>11. Incentive Measures</b>		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.

<b>12. Research and Training</b>	10	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
<b>13. Public Education and Awareness</b>	10	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
<b>14. Impact Assessment and Minimizing Adverse Impacts</b>		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
<b>15. Access to Genetic Resources</b>		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
<b>16. Access to and Transfer of Technology</b>		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
<b>17. Exchange of Information</b>		Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
<b>19. Bio-safety Protocol</b>		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
<b>Total %</b>	<b>100%</b>	<b>Check % = total 100</b>

### 3. Appendix II Outputs

Please quantify and briefly describe all project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date (reduce box)	Detail (←expand box)
<b>Training Outputs</b>		
1b	Number of PhD qualifications obtained	
2b	Number of Masters qualifications	
3b	Number of other qualifications obtained	
4a	Number of undergraduate students receiving training	
4b	Number of training weeks provided to undergraduate students	
4c	Number of postgraduate students receiving training (not 1-3 above)	
4d	Number of training weeks for postgraduate students	
5	Number of people receiving other forms of <b>long-term</b> (>1yr) training not leading to formal qualification( i.e not categories 1-4 above)	
6a	Number of people receiving other forms of <b>short-term</b> education/training (i.e not categories 1-5 above)	6 (incl. summer 2001)
6b	Number of training weeks not leading to formal qualification	54 (incl. summer 2001)
7	Number of types of training materials produced for use by host country(s)	
<b>Research Outputs</b>		
8	Number of weeks spent by UK project staff on project work in host country(s)	31 (incl. summer 2001)
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	1
10	Number of formal documents produced to assist work related to species identification, classification and recording.	
11a	Number of papers published or accepted for publication in peer reviewed journals	2
11b	Number of papers published or accepted for publication elsewhere	2 books (in prep.)
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	
13a	Number of species reference collections established and handed over to host country(s)	
13b	Number of species reference collections enhanced	
<b>Dissemination Outputs</b>		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work in host country	5

Code	Total to date (reduce box)	Detail (←expand box)
14c	Numbers of conferences/seminars/workshops attended at which finding from Darwin project work have been presented/disseminated in the host country	
15a	Number of national press releases or publicity articles in host country(s)	21
15b	Number of local press releases or publicity articles in host country(s)	
15c	Number of national press releases or publicity articles in UK	1
15d	Number of local press releases or publicity articles in UK	
16a	Number of issues of newsletters produced in the host country(s)	
16b	Estimated circulation of each newsletter in the host country(s)	
16c	Estimated circulation of each newsletter in the UK	
17a	Number of dissemination networks established in host country	
17c	Number of dissemination networks enhanced/extended in host country	
18a	Number of national TV programmes/features in host country(s)	
18b	Number of national TV programme/features in the UK	
18c	Number of local TV programme/features in host country	
18d	Number of local TV programme features in the UK	
19a	Number of national radio interviews/features in host country(s)	3
19b	Number of national radio interviews/features in the UK	
19c	Number of local radio interviews/features in host country (s)	
19d	Number of local radio interviews/features in the UK	
<b>Physical Outputs</b>		
20	Estimated value (£s) of physical assets handed over to host country(s)	15,000
21	Number of permanent educational/training/research facilities or organisation established	
22	Number of permanent field plots established	
23	Value of additional resources raised for project	49,200

#### 4. Appendix III: Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Details will be recorded on the Darwin Monitoring Website Publications database which is currently being compiled.

Mark (\*) all publications and other material that you have included with this report

**Please NOTE:** A significant output of this project is a book-sized report due to be published imminently – the camera-ready films are due to go to the printer by 10<sup>th</sup> Feb, following upsetting delays with the production process. We hope to have copies of this publication within a month of submitting it to the printer. I have delayed submitting this final report in the belief that I would be able to include our publication, but see now that to wait a further month is unacceptable. Nonetheless, I would request that in judging our outputs you wait to see the publication (which will include a bibliography of all the technical outputs of the project which are also now in press).

<b>Type *</b> (e.g. journals, manual, CDs)	<b>Detail</b> (title, author, year)	<b>Publishers</b> (name, city)	<b>Available from</b> (e.g. contact address, website)	<b>Cost £</b>
	<b>See para above</b>			



## 5. Appendix IV: Darwin Contacts

To assist us with future evaluation work and feedback on your report , please provide contact details below.

<b>Project Title</b>	European mink in Estonia
<b>Ref. No.</b>	162 07 137
<b>UK Leader Details</b>	
Name	Prof David W. Macdonald
Role within Darwin Project	Leader
Address	Wildlife Conservation Research Unit, Dept Zoology, South Parks Road, Oxford OX1 3PS
Phone	01865-271289
Fax	
Email	
<b>Other UK Contact (if relevant)</b>	
Name	
Role within Darwin Project	
Address	
Phone	
Fax	
Email	
<b>Partner 1</b>	
Name	Mr Tiit Maran
Organisation	Foundation Lutreola
Role within Darwin Project	Estonian coordinator
Address	Tallinn Zoo, Paldiski Road 145, 13522 Tallinn, Estonia
Fax	
Email	
<b>Partner 2 (if relevant)</b>	
Name	
Organisation	
Role within Darwin Project	
Address	
Fax	
Email	