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AND NATURAL HABITATS

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**Progress report on the implementation of the Action Plan for
the Eradication of the Ruddy Duck in the Western
Palearctic, 2021-2025**

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Summary

Ruddy Duck *Oxyura jamaicensis* is an introduced species in Europe, where it is a significant threat to the White-headed Duck *Oxyura leucocephala*. Since the 1990s, the Bern Convention has championed a plan to eradicate Ruddy Ducks. Outcomes of the latest version of the plan are that Ruddy Duck is functionally extinct in the wild in the Western Palaearctic by 2025, and that the risk of accidental introductions is understood and minimized.

A questionnaire was distributed to Contracting Parties to assess progress against the plan in 2021/22. Responses were received from 28 parties. Experts from countries with resident populations met to review the situation in detail, and identified needs to meet the targets.

There were around 225 Ruddy Ducks in Europe in 2021/22, similar to numbers in recent winters. Notable was the appearance of around 50 birds in France in mid winter, far more than the 10 or so birds in the previous year. Improved data from Germany indicated around 40 birds are present and likely resident, a higher figure than previously thought (12 birds in 2020/21).

Numbers controlled were broadly similar to those in recent winters (though much smaller in France, because intensive control there has reduced the population significantly). Although numbers controlled in the Netherlands remained insufficient to reduce the population, good progress to overcome the main barriers to control was achieved in the key province (*e.g.* obtaining licences to shoot in Natura 2000 sites, and the use of professional hunters). Whilst similar progress will need to be made in other provinces, the expectation is that numbers shot will increase markedly next year. There is currently very little control in Germany. Small numbers of transient birds were also controlled in several other countries.

Progress to eradicate birds in captivity continues to be slow. A programme in France has, however, reduced numbers there to fewer than 100. An escaped bird (from Germany) was controlled in the Netherlands, and there is suspicion that some records in Belgium, Germany and Switzerland may relate to escapes, highlighting the need to increase efforts on this part of the eradication plan.

Priority needs identified for the coming year are:

- The Netherlands – progress to overcome barriers to control in Noord-Holland is replicated in other provinces; implementation of control results in a significantly increased number of shot birds.
- Germany – understand and solve barriers to control, and mobilise an effective control programme; undertake surveillance for breeding birds.
- France – continue to develop control methods in addition to shooting; continue with genetic analysis to identify the origins of the influx of birds in December 2021.
- Belgium – continue the rapid response control programme.
- United Kingdom – continue the targeted control programme.
- France/Belgium/Netherlands – rapidly share information on numbers and distribution of birds in border regions, to help coordinate control.
- All countries with resident birds – continue to share expertise and best practice about control.
- All countries – to increase efforts regarding birds in captivity.

Introduction

Ruddy Duck *Oxyura jamaicensis* is native to North America. Following escapes from captivity in the United Kingdom in the 1940s, a large population became established in the wild, and gradually expanded across parts of Europe, becoming one of the biggest threats to the globally endangered White-headed Duck *Oxyura leucocephala*, through hybridisation and competition (Green & Hughes 1996).

In the 1990s, the Council of Europe commissioned a review and an action plan for the eradication of the Ruddy Duck, under the Bern Convention (Hughes et al 1999). This plan has been revised at regular intervals.

Eradication targets and actions for Contracting Parties

The latest eradication plan, for the period 2021–25 (Cranswick & Hall 2019), sets out a series of outcomes, with targets and actions for Contracting Parties, according to different Tiers:

- Tier 3 – Contracting Parties with breeding and/or significant numbers of Ruddy Ducks (Belgium, France, Germany, the Netherlands, the United Kingdom).
- Tier 2 – Contracting Parties at significant risk of Ruddy Ducks arriving from Tier 3 countries (Austria, Czech Republic, Denmark, Hungary, Ireland, Italy, Luxembourg, Norway, Poland, Spain, Slovak Republic, Sweden, Switzerland).
- Tier 1 – all other Contracting Parties in the Western Palaearctic.

Concerning Ruddy Ducks in the wild

Outcome:

- The Ruddy Duck is functionally extinct in the wild in the Western Palaearctic by 2025.

Targets:

- Tier 3 countries: undertake active control to reduce the Contracting Party's Ruddy Duck population to be functionally extinct by 2025.
- Tier 2 countries: undertake rapid reactive control to eliminate any Ruddy Duck in the Contracting Parties' territory.

Actions for all Contracting Parties:

- Monitor the status and distribution of Ruddy Ducks in the wild annually.
- Provide sufficient resources to effectively monitor numbers of Ruddy Ducks in the wild.
- Provide sufficient resources to meet national control targets.
- Rapidly identify and resolve any problems that delay or undermine national control measures (eg site access, public perception).

Concerning Ruddy Ducks in captivity

Outcome:

- The risk of accidental introductions of Ruddy Ducks in the Western Palaearctic is understood and minimized.

Targets:

- The numbers of Ruddy Ducks in captivity is understood by 2022.
- The risks of accidental introduction are assessed by 2024.
- No new introductions of Ruddy Ducks occur.

Actions:

- Prevent the importing, selling and breeding of captive Ruddy Ducks.

- Identify the number of individual birds, and the keepers of all Ruddy Ducks.
- Assess the risk of release (eg from poor biosecurity).
- Identify and implement mitigation for major risks of release (eg establish secure facilities to which keepers could give their birds).

Concerning adaptive management and international co-ordination

Outcomes:

- Progress towards achieving the plan's outcomes and targets is regularly assessed and adaptively managed.
- Contracting Parties coordinate their activities to collectively achieve the plan's outcomes and targets in a timely and cost-effective manner.
- The plan is updated in 2025.

Actions for all Contracting Parties:

- Report annually to the Convention –
 - Regarding wild Ruddy Ducks: the status of non-breeding and breeding wild Ruddy Ducks; progress towards and the likelihood of achieving national control targets; problems encountered to achieving control targets and the solutions identified to address these.
 - Regarding captive Ruddy Ducks: the status of Ruddy Ducks in captivity; an assessment of risk of new introductions.

Actions for Tier 3 Contracting parties:

- Experts (from all Tier 3 Contracting Parties as a minimum) meet to review progress against control targets, identify impediments to control, agree solutions, and report to the Convention annually.

1. Assessing progress

To assess progress against the 2021–25 eradication plan, a questionnaire was sent to all Contracting Parties in early summer 2022. This comprised multiple-choice questions regarding progress (there was a separate set of questions for Tier 3 countries (Appendix 3), with a shorter set for Tiers 1 and 2 (Appendix 4)) and requested data on numbers of birds in the wild, in captivity, and how many had been controlled.

Responses were received from 28 parties. These were mainly completed questionnaires, though a few were only partially completed, and some responses were emails saying that no Ruddy Ducks had been sighted in the country for some time.

A meeting was held of Tier 3 countries in July 2022, attended by technical experts from Belgium, France, Germany, the Netherlands and the United Kingdom, to consider progress and issues in more detail in these key countries.

2. Ruddy Ducks in the wild

Numbers of Ruddy Ducks observed in the wild and controlled by Contracting Parties since the previous eradication plan period (2016 – 2020) are given in Tables 1 to 3.

Table 1. Numbers of non-breeding Ruddy Ducks in Contracting Parties, 2019 to 2022.

Numbers are given as 'x, y, (z)', where x = number of birds, y = number of sites at which birds were found, and z = quality of estimate. Quality of estimate: 1 = coverage of sites largely complete and representative; 2 = partial coverage of sites only; 3 = expert guess. 'Winter' = 1 September to 31 March; 'Summer' = 1 April to 31 August. Data for summer 2022 are partial results, as responses were requested midway through the period. '?' = reported by respondent as 'unknown'; '-' = no answer provided.

	2019/20 Winter	2020 Summer	2020/21 Winter	2021 Summer	2021/22 Winter	2022 Summer
Tier 3						
Belgium	8, 6 (2)	8, 6 (2)	5, 2 (2)	6, 5 (2)	10, 9 (2)	9, 8 (2)
France	57, 1 (1)	30, 15 (3)	14, 1 (1)	13, 11 (2)	59, 1 (1)	19, 8 (2)
Germany	13, 11 (2)	9, 9 (2)	12, 10 (2)	5, 4 (2)	13, 11 (2)	16, 10 (2)
Netherlands	≥100-120, ≥15 (3)	≥80, ≥30 (3)	≥100-120, ≥15 (3)	≥75, ≥28 (3)	112, 13 (1)	?, ? (-)
United Kingdom	12, 12 (2)	12, 12 (3)	14, 8 (2)	14, 14 (3)	14, 15 (2) ¹	14, 10 (3)
Tier 2						
Czech Republic	1, 1 (1)	1, 1 (1)	1, 1 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Denmark	0, 0 (3)	0, 0 (3)	0, 0 (3)	0, 0 (3)	2, 2 (3)	1, 1 (3)
Hungary	1, 1 (1)	0, 0 (1)	0, 0 (1)	1, 1 (1)	0, 0 (1)	0, 0 (1)
Norway	0, 0 (3)	0, 0 (3)	0, 0 (3)	0, 0 (3)	0, 0 (3)	0, 0 (3)
Poland	0, 0 (1)	1, 1 (1)	4, 3 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Spain	0, 0 (1)	1, 1 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	1, 1 (1)
Sweden	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Switzerland	0, 0 (1)	0, 0 (1)	4, 3 (1)	1, 1 (1)	2, 2 (1)	1, 1 (1)
Tier 1						
Albania ²	0, - (-)	0, - (-)	0, - (-)	0, - (-)	0, - (-)	0, - (-)
Andorra	0, 0 (2)	0, 0 (2)	0, 0 (2)	0, 0 (2)	0, 0 (2)	0, 0 (2)
Bosnia and Herzegovina ²	0, - (-)	0, - (-)	0, - (-)	0, - (-)	0, - (-)	0, - (-)
Croatia	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Cyprus	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Estonia	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Finland	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	1, 1 (1)
Greece	?, ? (3)	?, ? (3)	?, ? (3)	?, ? (3)	?, ? (3)	?, ? (3)
Iceland	0, 0 (1)	1, 1 (1)	1, 1 (1)	2, 2 (1)	1, 1 (1)	2, 2 (1)
Liechtenstein	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Malta ³	0, - (-)	0, - (-)	0, - (-)	0, - (-)	-, - (-)	-, - (-)
Monaco	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Portugal ³	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	-, - (-)	-, - (-)
Serbia	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Romania	-, - (-)	-, - (-)	-, - (-)	-, - (-)	-, - (-)	-, - (-)
Slovenia	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)
Türkiye	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)	0, 0 (1)

Footnotes

¹ United Kingdom indicated that many of the Ruddy Ducks seen during winter 2021/22 used multiple sites.

² Albania and Bosnia and Herzegovina did not complete the questionnaire in 2022 but instead provided a response by email.

³Malta and Portugal did not complete the questionnaire in 2022. The data presented in Table 1 are taken from the 2021 progress report.

Table 2. Numbers of breeding Ruddy Ducks in Contracting Parties, 2020 and 2022.

Numbers are given as 'x, y, (z)', where x = pairs of birds, y = number of sites at which birds were found, and z = quality of estimate. Quality of estimate: 1 = coverage of sites largely complete and representative; 2 = partial coverage of sites only; 3 = expert guess. '?' = reported by respondent as 'unknown'; '-' = no answer provided.

	2020	2021	2022
Tier 3			
Belgium	0, 0 (2)	0, 0 (2)	0, 0 (2)
France	10, - (3)	2, - (3)	5, - (3)
Germany	1, 1 (2)	0, 0 (2)	0, 0 (2)
Netherlands	≥20, ≥13 (3)	≥22, ≥15 (3)	?, ?
United Kingdom	2, 2 (2)	1, 1 (2)	1, 0 (3) ¹
Tier 2			
Czech Republic	2, 2 (1)	2, 2 (1)	0, 0 (1)
Denmark	0, 0 (3)	0, 0 (3)	0, 0 (3)
Hungary	0, 0 (1)	0, 0 (1)	0, 0 (1)
Norway	0, 0 (3)	0, 0 (3)	0, 0 (3)
Poland	0, 0 (1)	0, 0 (1)	0, 0 (1)
Spain	0, 0 (1)	0, 0 (1)	0, 0 (1)
Sweden	0, 0 (1)	0, 0 (1)	0, 0 (1)
Switzerland	0, 0 (1)	0, 0 (1)	0, 0 (1)
Tier 1			
Albania ²	0, - (-)	0, - (-)	0, - (-)
Andorra	0, 0 (2)	0, 0 (2)	0, 0 (2)
Bosnia and Herzegovina ²	0, - (-)	0, - (-)	0, - (-)
Croatia	0, 0 (1)	0, 0 (1)	0, 0 (1)
Cyprus	0, 0 (1)	0, 0 (1)	0, 0 (1)
Estonia	0, 0 (2)	0, 0 (2)	0, 0 (2)
Finland	0, 0 (1)	0, 0 (1)	0, 0 (1)
Greece	?, ? (3)	?, ? (3)	?, ? (3)
Iceland	0, 0 (1)	0, 0 (1)	0, 0 (1)
Liechtenstein	0, 0 (1)	0, 0 (1)	0, 0 (1)
Malta ³	0, - (-)	0, - (-)	-, - (-)
Monaco	0, 0 (1)	0, 0 (1)	0, 0 (1)
Portugal ³	0, 0 (1)	0, 0 (1)	-, - (-)
Serbia	0, 0 (1)	0, 0 (1)	0, 0 (1)
Romania	0, 0 (1)	0, 0 (1)	0, 0 (1)
Slovenia	0, 0 (1)	0, 0 (1)	0, 0 (1)
Türkiye	0, 0 (1)	0, 0 (1)	0, 0 (1)

Footnotes

¹ United Kingdom indicated that there was no evidence of breeding in summer 2022 at the time of responding.

² Albania and Bosnia and Herzegovina did not complete the questionnaire in 2022 but instead provided a response by email.

³ Malta and Portugal did not complete the questionnaire in 2022. The data presented in Table 2 are taken from the 2021 progress report.

Table 3. Numbers of Ruddy Ducks controlled in Contracting Parties, 2019 to 2022.

Numbers are given as 'x, y', where x = numbers of birds controlled, and y = number of sites at which birds were controlled. The reporting periods run from 1 September to 31 August. '?' = reported by respondent as 'unknown'; '-' = no answer provided.

Answers from Tier 1 and 2 countries to the 2022 update question 'Were the Ruddy Ducks eliminated rapidly when seen in your country?' are given (answers adapted, for clarity of sense; see Appendix 4 for the full questions and possible answers). See also Appendix 2 for additional information provided by the countries.

	2019/20	2020/21	2021/22	Were Ruddy Ducks eliminated rapidly?
Tier 3				
Belgium	2, 2	2, 1	2, 2	
France	88, 13	61, 15	10, 8	
Germany	1, 1	0, 0	2, 2	
Netherlands	33, 7	19, 4	29, ?	
United Kingdom	1, 1	0, 0	1, 1	
Tier 2				
Czech Republic	?, ?	?, ?	0, 0	No birds seen
Denmark	6, 2	9, 4	9, ?	At least one third (>33%) were not eliminated
Hungary	0, 0	0, 0	0, 0	No birds seen
Norway	0, 0	0, 0	0, 0	No birds seen
Poland	0, 0	0, 0	0, 0	No birds seen
Spain	1, 1	0, 0	0, 0	No birds were controlled (1 seen)
Sweden	0, 0	0, 0	0, 0	No birds seen
Switzerland	0,0	0, 0	0, 0	No birds seen
Tier 1				
Andorra	0, 0	0, 0	0, 0	No birds seen
Croatia	0, 0	0, 0	0, 0	No birds seen
Cyprus	0, 0	0, 0	0, 0	No birds seen
Estonia	0, 0	0, 0	0, 0	No birds seen
Finland	0, 0	0, 0	0, 0	No birds were controlled (1 seen)
Greece	?, ?	?, ?	?, ?	No answer
Iceland	0, 0	0, 0	0, 0	No answer (2 seen)
Liechtenstein	0, 0	0, 0	0, 0	No birds seen
Monaco	0, 0	0, 0	0, 0	No birds seen
Portugal ¹	0, 0	0, 0	-, -	-
Serbia	0, 0	0, 0	0, 0	No birds seen
Romania	0, 0	0, 0	0, 0	No answer
Slovenia	0, 0	0, 0	0, 0	No birds seen
Türkiye	0, 0	0, 0	0, 0	No birds seen

Footnotes

¹ Portugal did not complete the questionnaire in 2022. The data presented in Table 2 are taken from the 2021 progress report.

No control of nests was undertaken in the Tier 3 countries (Belgium, France, Germany, United Kingdom; the Netherlands did not provide a response to the question). This question was not asked of the Tier 1 and 2 countries.

Tier 3 Contracting Parties were asked a number of questions relating to the targets and actions concerning Ruddy Ducks in the wild, as noted in the 2021–2025 eradication plan (see page 2): answers are presented in Table 4. Tier 1 and 2 Contracting Parties were simply asked whether Ruddy Ducks observed in the wild had been eliminated rapidly: answers are presented in table 5.

Table 4. Progress against targets and actions concerning Ruddy Ducks in the wild by Tier 3 Contracting Parties

Questions and answers below have been summarised slightly from the questionnaire for simplicity; see Appendix 3 for the full questions and possible answers. See also Appendix 1 for additional information provided by the countries.

	Belgium	France	Germany	Netherlands	United Kingdom
Q1 Will Ruddy Ducks be functionally extinct by 2025?	yes	no	no	yes	yes
Q2 Are non-breeding birds monitored?	largely	largely	partly	completely	completely
Q3 Do surveys provide an accurate assessment?	largely	completely	largely	completely	completely
Q4 Are breeding birds monitored?	no	partly	largely	partly	largely
Q5 Do surveys provide an accurate assessment?	no	partly	largely	partly	largely

3. Ruddy Ducks in captivity

Numbers of Ruddy Ducks held in captivity by Contracting Parties since the previous eradication plan period (2016 – 2020) are given in Table 6.

Table 5. Numbers of Ruddy Ducks in captivity Contracting Parties, 2020 and 2022.

Numbers are given as ‘x, y, (z)’, where x = number of birds, y = number of collections with birds, and z = quality of estimate. Quality of estimate: 1 = coverage of sites largely complete and representative; 2 = partial coverage of sites only; 3 = expert guess. ‘?’ = reported by respondent as ‘unknown’; ‘-’ = no answer provided.

	2020	2021	2022
Tier 3			
Belgium	?, ? (3)	35, 7 (2)	?, ? (3)
France	40, 30 (3)	40, 30 (3)	40, 30 (3)
Germany	19, 4 (2)	14, 4 (2)	12, 3 (2)
Netherlands	?, ? (-)	?, ? (-)	?, ? (-)
United Kingdom	50, 20 (3)	50, 20 (3)	50, 20 (3)
Tier 2			
Czech Republic	4, ? (2)	4, ? (2)	4, ? (2)

	2020	2021	2022
Denmark	?, ? (3)	?, ? (3)	4, 2 (3)
Hungary	0, 0 (1)	0, 0 (1)	0, 0 (1)
Norway	0, 0 (1)	0, 0 (1)	0, 0 (1)
Poland	0, 0 (3)	0, 0 (3)	0, 0 (3)
Spain	0, 0 (2)	0, 0 (2)	0, 0 (2)
Sweden	0, 0 (1)	0, 0 (1)	0, 0 (1)
Switzerland	?, ? (3)	?, ? (3)	?, ? (3)

Tier 1

Andorra	0, 0 (2)	0, 0 (2)	0, 0 (2)
Croatia	0, 0 (1)	0, 0 (1)	0, 0 (1)
Cyprus	0, 0 (2)	0, 0 (2)	0, 0 (2)
Estonia	0, 0 (1)	0, 0 (1)	0, 0 (1)
Finland	0, 0 (1)	0, 0 (1)	0, 0 (1)
Greece	?, ? (3)	?, ? (3)	?, ? (3)
Iceland	0, 0 (-)	0, 0 (-)	0, 0 (-)
Liechtenstein	0, 0 (1)	0, 0 (1)	0, 0 (1)
Monaco	0, 0 (3)	0, 0 (3)	0, 0 (3)
Portugal ¹	0, 0 (1)	0, 0 (1)	-, - (-)
Serbia	?, ? (3)	?, ? (3)	?, ? (3)
Romania	0, 0 (2)	0, 0 (2)	0, 0 (2)
Slovenia	0, 0 (3)	0, 0 (3)	0, 0 (1)
Türkiye	0, 0 (1)	0, 0 (1)	0, 0 (1)

Footnotes

¹ Portugal did not complete the questionnaire in 2022. The data presented in Table 2 are taken from the 2021 progress report.

Contracting Parties were asked a number of questions relating to the targets and actions concerning Ruddy Ducks held in captivity, as noted in the 2021–2025 eradication plan (see page 2): answers are presented in Tables 7 and 8.

Table 6. Progress against targets and actions concerning Ruddy Duck in held captivity by Tier 3 Contracting Parties.

Questions and answers below have been summarised slightly from the questionnaire for simplicity; see Appendix 3 for the full questions and possible answers. See also Appendix 1 for additional information provided by the countries.

	Belgium	France	Germany	Netherlands	United Kingdom
Q6 Are numbers in captivity and keepers known?	partly	partly	poorly	poorly	partly
Q7 When will numbers be accurately known?	2023 or 2024	2025 or after	2025 or after	2025 or after	2025 or after
Q8 What is the risk that a bird could escape?	some risk	highly unlikely	unknown	unknown	low risk
Q9 How well is the risk of escape understood?	reasonably	best guess	not possible to assess	not possible to assess	reasonably
Q10 When will you be able to assess the risk of escape?	2024 or before	2024 or before	2027 or after	2027 or after	2027 or after

	Belgium	France	Germany	Netherlands	United Kingdom
Q11 Have birds escaped from captivity in the last 18 months?	yes	yes	yes	unknown	no

Table 7. Responses from Tier 1 and 2 Contracting Parties to questions regarding Ruddy Ducks held in captivity.

Questions and answers below have been summarised slightly from the questionnaire for simplicity; see Appendix 4 for the full questions and possible answers. An empty cell indicates that no answer was provided. See Appendix 2 for additional information provided by the countries.

	Are Ruddy Ducks held in captivity?	Are birds in captivity monitored?
Tier 2		
Czech Republic	yes (EU regulation applies ¹)	yes
Denmark	yes, until the birds die naturally	no, and nothing is planned
Hungary	no (EU regulation applies)	no, and nothing is planned
Norway	no (EU regulation applies)	yes
Poland	no (EU regulation applies)	no, and nothing is planned
Spain	no (EU regulation applies)	yes
Sweden	no (EU regulation applies)	no, and nothing is planned
Switzerland	unknown	
Tier 1		
Andorra	no, it is not permitted	no, and nothing is planned
Croatia	no (EU regulation applies)	yes
Cyprus	no (EU regulation applies)	no, and nothing is planned
Estonia	no (EU regulation applies)	yes
Finland	no (EU regulation applies)	yes
Greece	unknown	no, and nothing is planned
Iceland		
Liechtenstein	no, but it is permitted	yes
Monaco	unknown	no, and nothing is planned
Serbia	unknown	no, and nothing is planned
Romania	no (EU regulation applies)	yes
Slovenia	no (EU regulation applies)	yes
Türkiye	no, it is not permitted	no, and nothing is planned

Footnotes

- 1 Refers to EU Regulation 1143/2014 on Invasive Alien Species.

4. Detailed situation in Tier 3 Contracting Parties

A more detailed picture of the situation and control measures in Tier 3 Contracting Parties is provided below. Much of this information was provided at a Meeting of Experts in July 2022. This meeting is to allow adaptive management of the eradication programme, to clarify if progress is likely to meet the intended targets, and to agree and explore solutions where problems or delays arise.

Belgium

Numbers remain similar, though there is perhaps a sense of some decline. Records mostly comprise single birds, occasionally two. There is some shift in distribution, with more birds in inland areas, close to the border with France, and it is speculated that some birds may be escapes. There was one breeding attempt in the last year, which was controlled. The citizen science platform is believed to provide the most complete information on the number of birds.

The rapid control response remains in place and operates well, and many of the sighted birds are controlled. Access is challenging to some sites, and some birds are found in difficult-to-view locations. There are felt to be no problems with non-reporting of sightings, and no obvious negative reaction from the public or relevant organisations.

France

Numbers in France are greatly reduced in recent years, as a result of the LIFE project there, falling from around 200 to just 6–8 birds in November 2021. The population has been centred on Lac de Grand-Lieu in the west, with smaller numbers in the north and east of the country. Control is undertaken from three watchtowers around Lac de Grand-Lieu in winter, and also from the lake banks when birds move closer to the reedbeds in spring, but is difficult as birds are mostly distant. Trapping methods are also being developed, though delayed by Covid restrictions, and show some signs of success for Pochards. No escapes from captivity were found among the controlled birds.

In December 2021, there was a sudden arrival of 50 birds on Lac de Grand Lieu – 75% of which were adults – but these had left by the end of February. A genetic analysis is underway to see if this can shed light on their origin.

As part of the EU IAS regulation, a large operation is underway to reduce the captive population, in partnership with Aviornis, the main association for private breeders. Around 100 birds remain, a notable decrease from over 200 birds previously. Breeders are being encouraged to transfer their birds to secure zoos.

Germany

There were 16–18 records, comprising 19–22 individuals, in 2020/21, and 24 records involving 31 individuals in 2021/22. Most involve small numbers, but there was a group of six (three males and three females) in northeast Germany for one day in April 2022.

Whilst there are difficulties in assessing these data – including that the validity of all records has not been checked, and a suspicion that some birds are not reported – given repeat sightings from the same locations, the total is estimated to be around 40 birds. This is notably higher than the numbers reported in Table 1. It is also notably higher than the numbers reported the previous year (12 birds). Ruddy Ducks were found widely across the country, in eight of the 16 federal states. No breeding attempts have been reported since that in 2020, which failed.

One bird may have been controlled, though this is not confirmed. There is a working group among the Federal States for the eradication of invasive species, but there is no effective implementation of the eradication plan for Ruddy Ducks. The practicality of shooting the birds and difficulties with the use of firearms are contributing factors.

There is little information on the status in captivity. Numbers are presumed to be low – there are known to be five in one state, and singles in several other. No breeding is known to occur. Little effort has been made to eradicate these birds.

The Netherlands

Numbers remain similar to recent years. The number of birds controlled in 2021/22 was similar to recent years, but there have been some notable developments in the last year to increase the efficacy of the control programme.

Control is delegated to the Provinces. The Province of Noord-Holland, which holds the largest numbers of birds, has addressed several of the ongoing barriers to control, including the legal decision to allow eradication

in Natura 2000 sites, the use of air rifles, decoys and bait, and using a professional hunter for eradication (wildlife management in the Netherlands is generally undertaken by voluntary hunters). An interprovincial group shares best practice and coordinate eradication. All provinces are aiming to secure licences and permits to enable control in Natura 2000 sites, and there is an ambition for a cross-border approach to the use of professional hunters.

Whilst legal barriers remain in other provinces – particularly around access and safety in urban areas; insufficient resources for IAS control in some provinces; ethical concerns among the public preventing reporting; and perceived public reaction to control – it is hoped that the advances made by some provinces will enable the problems to be overcome elsewhere.

In June 2022, a meeting on eradication was attended by a large number of managers and policy makers, and by experts from the United Kingdom and France to share good practice on control measures, including the use of traps.

One of the controlled birds was an escape, ringed in 2016 in Germany.

United Kingdom

The population remains low, with just 15 to 20 individuals. Numbers and distribution are well known. Breeding does not occur yearly, and mixed-sex populations are found only in three areas. The risk of recovery is thought to be high in only one region. Tracking down birds for control is challenging, given the small numbers remaining. The United Kingdom strategy is to continue monitoring, including specialised searching for breeding cores, and to prioritise the removal of adult females, and males where breeding is likely. This is anticipated to be needed for the medium-term, in order for the birds which evade control to die out naturally.

5. Conclusions and priority needs

Status in the wild

The total numbers of Ruddy Ducks in Europe is estimated at approximately 225 birds: around 110 in the Netherlands, 50 in France, 40 in Germany, 15 in the United Kingdom and 10 in Belgium. There is a possibility of some double-counting, and a particular question mark surrounds numbers in France – the 50 recorded in mid winter may represent movement from elsewhere. A further winter's data should help provide clarity, as may the genetic analysis being undertaken.

A notable concern is the situation in Germany. A better picture from improved data is welcomed, but shows that numbers are much larger than previously thought. Further, birds are widespread, occurring in half the federal states, and across the range of the country, not just concentrated in regions closest to the Netherlands. Repeated sightings at the same sites, and the presence of significant numbers during summer, implies a resident population, rather than wandering birds from other countries.

Very few birds were recorded outside Tier 3 countries. In the last year, Ruddy Ducks were found in just four countries – Denmark, Iceland, Finland and Spain – and just one or two birds in each case. Whilst not all Contracting Parties responded to the questionnaire, low numbers elsewhere are consistent with the significant reduction in the countries with breeding birds over the last three or four years. They indicate that such sightings likely relate to wandering birds from the core range, with a low chance of their being a major risk to new breeding.

Breeding now occurs regularly only in two countries – the Netherlands (at least 20 pairs) and France (around five). [Footnote – no data were provided on breeding in the Netherlands for the most recent year, but given wintering numbers are the same as in the previous two years, it seems safe to assume breeding numbers are also similar] Although breeding is no longer annual in Belgium or the United Kingdom, the risk will remain for the medium term in both countries. Whilst no breeding records were reported from Germany, there is a high risk it may go undetected, given the total numbers, given that birds are present year round, and that birds are secretive at that time of year. Increased vigilance and dedicated surveys for breeding birds in Germany should be a priority.

Control

The improved impetus and progress in addressing political and other barriers regarding control in the Netherlands are very welcome. This appears to have resolved the most significant issues, and it is hoped that a large reduction in numbers will follow.

Continued momentum, resources and coordination are required to ensure that the control activities now possible because of new permits are undertaken; that result in a significantly increased number of controlled birds in Noord-Holland; to ensure that the progress to overcome barriers is quickly replicated in other provinces; and to ensure that effective control programmes are rapidly deployed across all relevant provinces. This mobilisation will need to happen quickly to meet the target of functional eradication by 2025, which is still deemed achievable in the Netherlands.

The absence of effective control in Germany is of much more significant concern now it is clear that substantial numbers are resident in the country. The situation appears similar to that in the Netherlands in recent years, with control delegated to regional structures, but which founders due to implementation at the local level. There is a clear need to clarify the technical, resource and political barriers to implementation as a priority; and to ensure effective coordination across the states. The considerable experience from the United Kingdom, France and Belgium shows that the technical, logistical and public challenges can be overcome, whilst experience from Netherlands can be used to ensure this learning can be translated to a federal approach. A key priority is for Germany to implement an effective eradication programme, drawing upon the learning and experience of other Contracting Parties as appropriate. It is important to mobilise this effort with immediate effect, to ensure that the international programme is synchronised across countries in these final stages of control.

Following considerable progress with control in France during the Life Project, it is important to maintain that momentum for the challenges posed by having a much smaller breeding population. Particular attention will be needed for vigilance to find the few remaining birds, and continued resources will be needed to develop and refine the control methods to eradicate sufficient birds to reach functional extinction. Given the likely protracted period to eliminate sufficient of the small number of remaining birds, it is important to secure the ongoing commitment and resources that will be required after the Life project has ended.

The reactive control programmes in Belgium and the United Kingdom appear to be effective. It is important that these are maintained for the medium term to ensure population levels there remain at or close to functional extinction.

As numbers decline, there is a greater need for close coordination of activities across borders. Birds in the adjoining regions of France, Belgium and the Netherlands (and perhaps also Germany) are likely to cross national borders, potentially hindering control there. As the population becomes smaller, control may increasingly rely on coordinated – not just synchronous – efforts by Contracting Parties. The sharing of data in near real time (eg via an online dashboard) could likely assist the reactive response in those areas.

Captive birds

The control of a Ruddy Duck in the Netherlands that had escaped from captivity (in Germany), and the suspicion in Belgium, Germany and Switzerland that some records may relate to escapes, highlight the need to reduce and eliminate the risk from captive populations.

Whilst eradication efforts have understandably focused on the wild population, there is a concern that little progress has been made with regard to the captive situation. Basic data on captive numbers are absent or poorly known for many countries. The marked reduction of captive numbers in France is very welcome, and shows what can be achieved. There is a pressing requirement to address the issues preventing an effective eradication programme for captive birds. To ensure an effective and efficient approach, an obvious priority is to coordinate with the EU IAS, clarify the issues, and ensure that a clear plan is implemented to an appropriate timescale.

6. Acknowledgements

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7. References

- Cranswick, PA, & C Hall. 2020. *Eradication of the Ruddy Duck Oxyura jamaicensis in the Western Palaearctic: a review of progress and a revised Action Plan for 2021–2025*. WWT report to the Bern Convention.
- Cranswick, PA, & C Hall. 2021. *Eradication of the Ruddy Duck Oxyura jamaicensis in the Western Palaearctic: 2021 progress update on implementation of the 2021–25 eradication plan*. WWT report to the Bern Convention.
- Green, AJ, & B Hughes. 1996. Action plan for the White-headed Duck *Oxyura leucocephala*. In: *Heredia, B, L Rose & M Painter (Eds). Globally threatened birds in Europe*. Council of Europe Publishing, Strasbourg.
- Hughes, B, J Criado, S Delany, U Gallo-Orsi, AJ Green, M Grussu, C Perennou & JA Torres. 1999. *The status of the North American Ruddy Duck Oxyura jamaicensis in the Western Palearctic: towards an Action Plan for Eradication*. Council of Europe Publication T-PVS/Birds (99) 9. Council of Europe Publishing, Strasbourg.

Appendix 1: additional information provided by Tier 3 Contracting Parties

The following is the additional information (written verbatim) provided. Not all countries provided additional information for every question.

- Q1: Will Ruddy Ducks be functionally extinct in your country by 2025? If your answer is 'No - it is unlikely', please list the problems or barriers

Belgium	We have not seen breeding in the last three years (although in 2022 a breeding attempt was probably prevented by shooting) and numbers of birds are consistently low in summer as well as in winter (<10 reports per year). There is still the possibility of breeding going unnoticed although suitable areas are generally well covered by birders (and citizen science platforms). Judging from 2 very tame birds at one location, of which one was shot, it is possible that there are still some isolated escapes.
France	The barrier is the Netherlands population that still breeds in the wild, but a huge effort is planned in the next years so we wait for the results
Germany	Ruddy Ducks appear very sporadically and in low numbers during the year (single specimens). Shooting is sometimes complicated on the large water bodies due to dangerous ricochets and waves. Shooting is difficult for reasons of public safety and the sudden appearance and frequent relocation of the animals.

- Q2: Are the status and distribution of non-breeding Ruddy Ducks monitored in the wild in your country? (surveys at any time of year to assess numbers present). If your answer is 'Partly' or 'No', please explain why and list the actions being taken to address this.

Germany	Several monitoring systems for birds are established in Germany (e.g. reporting platform Ornitho.de, DDA bird monitoring). However, due to rare detections there is no specific monitoring for the ruddy duck throughout all sites and all seasons of the year.
Netherlands	SOVON report on monitoring winter '21/'22

- Q3: Do the surveys provide an accurate assessment of non-breeding Ruddy Duck numbers and status in your country? If your answer is 'Partly' or 'No', please explain why and list the actions being taken to address this.

Netherlands	SOVON report on monitoring winter '21/'22
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- Q4: Are the status and distribution of breeding Ruddy Ducks monitored in the wild in your country? (Surveys specifically to record breeding occurrence and assess numbers of breeding pairs.) If your answer is 'Partly' or 'No', please explain why and list the actions being taken to address this.

Belgium	not applicable, no breeding since two years, but in any case there are no specific surveys for breeding occurrences
France	The breeding birds are not always detected, but the proportion of juveniles in the wintering population informs us on the breeding success. It is sufficient to get a good picture of the dynamics of this population.

Netherlands	There is no survey for breeding Ruddy Ducks like the survey for non-breeding ones. But still there are surveys for breeding birds in general. These survey are often performed by volunteers. They do not always recognize the Ruddy Duck and sometimes they deliberately withhold information. In some of the provinces there are (semi) professional surveys; birders who count all the waterbirds (South-western Delta), they recognise the Ruddy Duck and give the information to the authorities.
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- Q5: Do the surveys provide an accurate assessment of breeding Ruddy Duck numbers and status in your country? If your answer is 'Partly' or 'No', please explain why and list the actions being taken to address this.

France	Same argument
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- Q6: Is the number of captive Ruddy Ducks and keepers in your country known? If your answer is 'Partly' or 'Poorly', please explain the issues and list the actions being taken to address these.

Belgium	The situation has not changed since last year. When the EU regulation came into place, holders were required to get a permit for keeping. The government made various announcements on this obligation through bird keeper organizations. The requests identified 7 holdings (all in 2017, with no since), for no more than 35 birds. In accordance with the EU regulation, these birds cannot be used for breeding and can only be kept until the end of their natural lives. Other holdings may remain unnoticed, although no ruddy ducks have been encountered during inspections. The captive population is now considered to be phasing out, and is not considered an important risk anymore.
France	Partly. A first survey was done in 2013. The ban of ruddy duck breeding in 2016 prevents any new owner to answer spontaneously to a new survey without a fee. But we have done a survey with the historical owners to get a trend on the size evolution of the captive population, and the first results tend to support that the ban is respected and that the captive population is depleting dramatically.
Germany	The number of Ruddy Ducks in private collections is mostly not known because it is not notifiable. Please note that the number of reported birds in section III. "Birds in captivity" has changed also for 2020 and 2021 because new information on birds in captivity was available.
Netherlands	EU regulation 1143/2014 forbids the keeping or breeding of the ruddy duck as of August 2016. There is a transitional provision for individuals that were kept when the species was placed on the Union list; these may be kept until their natural death provided that they do not escape and do not breed. It is unknown how many individuals were kept in 2016, and how many are still alive today. No permits were issued for breeding.
United Kingdom	No register of Ruddy Ducks so relying on previous surveys and monitoring of waterbird collections.

- Q8: What is the risk that a bird could escape from captivity? If your answer is 'some risk' or 'low', please list the actions being taken to address this.

Belgium	Regional nature inspection services perform checks of facilities for compliance with the provisions of the EU Regulation (when alerted). This way, at least one check was performed in 2021 of a facility which appeared to have 4 individuals of the other species <i>Oxyura guttata</i> .
France	Among the 460 birds culled from the official ban, only one was banded. So the threat is objectively very limited

Netherlands	There are no records of escapes. It is unknown how many of the ruddy ducks that were held in 2016 are still alive.
United Kingdom	The issue of Ruddy Ducks appears to be well understood by keepers and the ongoing control programme means that any escapes are likely to be shot.

- Q9: How confident are you that you understand the risk of escape accurately? If your answer is 'an estimate' or 'it is not possible to assess accurately', please explain what actions are being taken to address this.

Germany	The total number of ducks in captivity is not known. Hence, it is not possible to calculate the risk of escape.
Netherlands	Keeping and breeding ruddy ducks is forbidden as of 2016. Birds that were held in 2016 fall under the transitional provisions and will eventually die.

- Q11: Do you know of or suspect any Ruddy Ducks to have escaped from captivity in the last 18 months? If your answer is 'Yes', please give details.

Belgium	Two birds at one location where they have never been observed before were very tame, which could be an indication of (local) escape. In any case, the assessment of most people involved is that escapes are very rare.
France	yes one.
Germany	One suspected case: One Ruddy Duck shot in the Netherlands in spring could be traced back to a breeder from Lower Saxony. But the further course of that animal since breeding in 2016 could not be clarified so far.
Netherlands	It is unknown whether Ruddy Ducks have escaped in the Netherlands in the last 18 months. But a 'German' Ruddy Duck was eradicated and this bird was ringed (German), so it must have escaped from captivity.

Appendix 2: additional information provided by Tier 1 and 2 Contracting Parties

The following is the additional information (written verbatim) provided. Not all countries provided additional information for every question.

- Q: Were the Ruddy Ducks eliminated rapidly when seen in your country? If your answer is 'At least one third (>33%) of the Ruddy Ducks observed were not eliminated' OR 'None of the Ruddy Ducks were eliminated' please explain the reasons, and list the actions being taken to address this.

Denmark	One individual has not been eradicated by 23 June 2022 due to harsh weather conditions and is located in an inaccessible area.
Hungary	The Ruddy Duck specimens were constantly accompanied by a flock of other (protected) ducks and other waterbird species on both occasions. Singling out the one specimen would not have been possible without risking the life of the rest of the birds.
Poland	There are no individuals in Poland at the moment. The action will be taken if needed.
Spain	It was not possible to finally shoot the unique bird seen in northern Spain (Laguna de Pitillas, Navarra) during April 2022. It was an adult male that finally disappeared.
Switzerland	The sites of occurrence are usually wide areas of lake shores and marshland and birds are not easy to relocate. Birds seem to present for only a short while, mostly one day (no chance for response to control the birds) or hiding perfectly in e.g. flooded reeds.
Cyprus	R.ducks have not been found in any establishment to be confiscated and or eliminated.
Estonia	Species does not exist in our country, therefore no ruddy ducks have been eliminated.
Finland	One vagrant male was sighted on 10.6 near Kokkola. It was not sighted on subsequent days.
Monaco	No ruddy Ducks were seen.
Slovenia	No Ruddy Ducks were spotted.
Türkiye	No ruddy ducks were observed in Türkiye.

- Q: Is there a system in place or being developed to assess (monitor) numbers of Ruddy Ducks held in captivity in your country? Please select your answer from the drop down list. Please provide further details of the assessment (monitoring) system. Please identify any problems in implementing the system.

Denmark	There are no official recordings of Ruddy Ducks kept in captivity in Denmark. There are however Ruddy Ducks in captivity in Denmark. As the Ruddy Duck is on the EU list of invasive species of Union concern, measures will be taken.
Hungary	As it is not legal to keep Ruddy Ducks in captivity in Hungary, and no intention for that has been observed so far, there is no need to develop a monitoring system specifically for the species.

Norway	<p>EU regulations apply in Norway as an EEA country. When importing poultry and hatching eggs from other countries, there are general provisions. The importer and first recipient must be registered with the Norwegian Food Safety Authority before importation or importation takes place. All trade in live animals is registered in a common EU database called TRACES.</p> <p>Poultry and hatching eggs that are introduced or imported into Norway in connection with trade must come from approved poultry operations and not originate from countries or areas in countries that are subject to restrictions due to infectious diseases.</p>
Poland	<p>According to the EU regulations it is not possible to held Ruddy Ducks in captivity without special permission issued by authorities in certain cases. There are no derogations granted for this species in Poland currently. There is no confirmed information about the species being kept illegally in captivity.</p>
Spain	<p>THERE IS NO EVIDENCE OF PEOPLE/ORGANIZATIONS HOSTING IN THEIR COLLECTIONS ANY INDIVIDUAL OF RUDDY DUCKS IN SPAIN</p>
Sweden	<p>It is Illegal to keep Ruddy duck in captivity in Sweden. There is no specific monitoring program in place for ruddy duck kept in captivity for this reason. The species very rarely occurs in the wild (no observations since 2008). Since the species is well known by bird watchers and hunters, the risk of individuals occurring without being observed is close to zero. In effect, all occurrences are logged in the Species Observations System. Additionally there is an open hunting season in place for Ruddy duck, and those few stray birds that do occur are, if possible, shot. Since 2019 a specific task force under the Swedish Hunting Association has been tasked by the Swedish EPA to hunt all vertebrae terrestrial invasive species that occur in Sweden.</p>
Switzerland	<p>Keeping Ruddy Ducks in captivity is forbidden in Switzerland. However, numbers of individuals in the wild of probable or proven escapes are rather constant in the last years. The origin of these birds remains unknown. They could originate from illegal private aviaries located in Switzerland (close to Lac Neuchâtel and Bielersee) or adjacent regions of e.g. Germany (Hochrhein).</p>
Croatia	<p>There are no Ruddy Ducks held in captivity in Croatia.</p>
Estonia	<p>Keeping, importing, breeding and making any transactions with ruddy ducks has been banned in Estonia since 22.10.2004, based on our Nature Conservation Act and ministerial regulation. The only permitted exemption is for scientific research and no such permits have been issued during all this time for this species. Bird collections are assessed during zoo licencing process and no ruddy ducks are in any zoos. If ruddy duck would be found or suspected in private collection/zoo there are dedicated nature conservation inspectors who have powers to inspect collections, confiscate animals, issue fines or even detention to violators. So there systems in place to stop people keeping these birds q1 additional info: to our knowledge no ruddy ducks have ever been kept in captivity in Estonia, ban in place since 2004 q3 additional info: as stated above there are systems in place to deal with any violators of the law, as there have never been known case of ruddy duck in captivity it is hard to say "numbers are assessed", but we know that the system works as we have cases where our inspectors have dealt with some other alien species banned by the same ministerial regulation.</p>
Finland	<p>The assessment and monitoring of invasive alien species is carried out and coordinated by the Finnish Institute of Natural Resources. Observations are entered and verified on a dedicated website portal (https://vieraslajit.fi/).</p>
Greece	<p>No literature on the occurrence of ruddy duck in Greece is available.</p>
Liechtenstein	<p>The keeping of birds is subject to authorisation and the number of animals must be disclosed annually.</p>

Serbia	The ruddy duck is a species that has not been recorded in wild in Republic of Serbia so far. We have some information that ruddy duck has been found in captivity, but until now, it was not the species of any concern or regulation. In the light of your concern, white-headed duck is extinct breeder of Serbia and there is no risk in compromising the national population of white-headed duck. As you explained the issue with alien invasive species ruddy duck, Republic Serbia can and will take measures in preventing the potential spreading in wild of this species on its territory. In accordance with the Action Plan of the Nature Protection Program of the Republic of Serbia for the period 2021-2023, established by the Government of the Republic of Serbia, the improvement of monitoring and removal of invasive species will be implemented, including the following activities: 1 Elaboration of the New Law on Nature Protection related to the proclamation, control and removal of allochthonous invasive species in 2023.2. Drafting a by-law on the basis of the Law on Nature Protection for the proclamation, control and removal of allochthonous invasive species in 2023.3. Determining indicators for monitoring invasive species in 2022.
Slovenia	In consultation with veterinary authority and veterinary consultant it was established that there is no known breeding of this species in Slovenia.
Türkiye	No ruddy ducks in the wild observed and the trade of ruddy duck is forbidden in Türkiye. They are checked at the custom points.

Appendix 3: questions and answers used in the questionnaire for Tier 3 Contracting Parties, 2022

Ruddy Ducks in the wild		
Questions		Answer options
Q1	Will Ruddy Ducks be functionally extinct in your country by 2025?	<ul style="list-style-type: none"> • Yes - we are confident they will be • No - it is unlikely • They are already extinct
Q2	Are the status and distribution of non-breeding Ruddy Ducks monitored in the wild in your country? (surveys at any time of year to assess numbers present)	<ul style="list-style-type: none"> • Completely • Largely • Partly • No
Q3	Do the surveys provide an accurate assessment of non-breeding Ruddy Duck numbers and status in your country?	<ul style="list-style-type: none"> • Completely • Largely • Partly • No
Q4	Are the status and distribution of breeding Ruddy Ducks monitored in the wild in your country? (surveys specifically to record breeding occurrence and assess numbers of breeding pairs)	<ul style="list-style-type: none"> • Completely • Largely • Partly • No
Q5	Do the surveys provide an accurate assessment of breeding Ruddy Duck numbers and status in your country?	<ul style="list-style-type: none"> • Completely • Largely • Partly • No
Ruddy Ducks in captivity		
Questions		Answer options
Q6	Is the number of captive Ruddy Ducks and keepers in your country known?	<ul style="list-style-type: none"> • Yes - largely or completely • Partly • Only poorly or not at all
Q7	When will the numbers of captive birds and keepers be accurately known?	<ul style="list-style-type: none"> • 2022 • 2023 or 2024 • 2025 or after • Already in place
Q8	What is the risk that a bird could escape from captivity?	<ul style="list-style-type: none"> • There is some risk • The risk is low • The risk is highly unlikely • The risk is unknown • No Ruddy Ducks held in captivity
Q9	How confident are you that you understand the risk of escape accurately?	<ul style="list-style-type: none"> • The risk is reasonably well understood • The risk is an estimate / best guess

		<ul style="list-style-type: none"> • It is not possible to assess the risk accurately • No Ruddy Ducks held in captivity
Q10	When will you be able to assess the risk of escape reasonably accurately?	<ul style="list-style-type: none"> • 2024 or before • 2025 or 2026 • 2027 or after • No Ruddy Ducks held in captivity
Q11	Do you know of or suspect any Ruddy Ducks to have escaped from captivity in the last 18 months?	<ul style="list-style-type: none"> • Yes • No • No Ruddy Ducks held in captivity

Appendix 4: questions and answers used in the questionnaire for Tier 1 and 2 Contracting Parties, 2022

Ruddy Ducks in the wild		
Questions		Answer options
Q4	Were the Ruddy Ducks eliminated rapidly when seen in your country?	<ul style="list-style-type: none"> • Yes, most/all of the Ruddy Ducks were eliminated in <2 weeks • Most/all of the Ruddy Ducks were eliminated eventually • At least one third (>33%) of the Ruddy Ducks observed were not eliminated • None of the Ruddy Ducks were eliminated
Ruddy Ducks in captivity		
Questions		Answer options
Q1	Are Ruddy Ducks still held in captivity in your country?	<ul style="list-style-type: none"> • Yes, Ruddy Ducks are still held - but only until the birds die naturally (EU regulation applies) • No, Ruddy Ducks are no longer held - all birds known to have been kept in captivity have died (EU regulation applies) • Yes, Ruddy Ducks are held - it is permitted to keep Ruddy Ducks in captivity (non-EU country) • No, Ruddy Ducks are not held - but it is permitted to keep Ruddy Ducks in captivity (non-EU country) • No, Ruddy Ducks are not held - it is not permitted to keep Ruddy Ducks in captivity (non-EU country) • Yes, Ruddy Ducks are held - but it is not permitted to keep Ruddy Ducks in captivity (non-EU country) • Unknown
Q3	Is there a system in place or being developed to assess (monitor) numbers of Ruddy Ducks held in captivity in your country?	<ul style="list-style-type: none"> • Yes, numbers of birds in captivity are assessed • A system is being developed and will be in place in 2022 • A system is being developed and will be in place in 2023 or 2024 • A system is being developed and will be in place in 2025 or after • No system in place and nothing is planned