

Markus Unsöld

Waldrappteam.at Report 2006 & Outlook





Mutters, 12. 2. 2006

Dear friend of the project Waldrappteam.at

I am happy to inform you about a further successful year of our project. We brought a second group of birds to the Tuscany. Both groups are together now; they are free-flying and feed on their own.

Beside we had again different activities. In Burghausen, Bavaria, we carried out a study on feeding-ecology with a

free-flying group of one year old birds. The birds attracted lots of local people, just as our exhibition did, which was first placed in the Museum INATURA in Dornbirn, Vorarlberg, and later on in the Zoo Schmiding, Upper Austria. A group of six birds, hand-raised in the Zoo Schmiding during the exhibition, flew free during summer near Waidhofen a.d. Thaya, Lower Austria, and were then integrated into the local Waldrapp group placed in a spacious aviary.

A great success was the behaviour of the seven birds, which fly free in Italy since April 2005. These birds behave 'biologically meaningful' just as juvenile migratory birds are expected to do. They have proper distance to humans, they feed independent, and they seem to have knowledge about the migration route. None of these birds got lost yet.

After this summer Dipl.Biol. Alexandra Wolf left the project. For year she was a very relevant member of the team. Thanks a lot!

I also thank all the sponsors and supporters as well as all the people, whose interest and enthusiasm motivated us a lot.

With best wishes

Johannes Fritz Project leader Waldrappteam.at

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Autumn Migration 2005	- 7 -	Responsible for the content::
Wintering at the Laguna 2005/06	- 7 -	Dr. Johannes Fritz, Waldrappteam.at,
Data collection: Migration physiology	- 8 -	Schulgasse 28, 6162 Muttes, Österreich.
Data collection: Feeding ecology	- 9 -	email: jfritz@waldrappteam.at,
Other activities 2005	- 10 -	Mobile: 0043 676 5503244;
Continuation of the project 2006/07	- 11 -	Homepage:www.waldrappteam.at
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Research Project: Spatio-temporal patterns, orientation and physiology of migrating Northern bald ibises (*Geronticus eremita*).

Status: in preparation

Prospective Duration: 2007-2010

Abstract: The Northen bald ibis migration project offers very specific opportunities for migration research. One aspect of the designated project will be to investigate physiological and behavioural patterns before and throughout migration. A preceding studies (Fritz et al. subm.) indicate a down and upregulation of corticosterone in relation to flightdays and stopovers. This pattern seems to be functinally realted to the energy management.

Research Project:

Evaluation of the genetic diversity in the Northern Bald Ibis zoo population,

Status: PhD Project in preparation

Personal: Mag. K. Zoufal

Institution: Waldrappteam.at; Konrad Lorenz Research Station; Univ. Vienna, BNC

Abstract: Evalutation of the genetic diversity in the wild, semi-wild and captive population of Northern bald ibis (NBI; Geronticus eremita) is mentioned as a high priority in the NBI species action plan. However, despite several attemps there is no comprehensive study avialable yet. The project aim to evaluate (in an ascending order) (1) the genetic diversity in selected captive and semi-wild breeding stocks of NBI from Moroccon origin; (2) to evaluate the genetic diversity of the wild Moroccon population and the Syrian birds, as far as feather or tissue samples are avilable; (3) to evaluate the genetic diversity from Turkish origin, as far as feather or tissue samples are avilable; (4) to try to get DNA samples out of historical European tissues (bones, feathers). Our aims are (1) to evaluate and optimise genetic diversity in the captive and semi-wild breeding stock; (2) to create a genetically diverse stock of captive breeding birds as a basis for reintroduction projects; (3) to evaluate the genetic diversity of birds from Morrocan, Turkish and Syrian origin.

Research Project

On the relationship between genetic determination and social tradition in the bird migration: a comparative study in Ciconiiformes

Status: PhD Project in preparation

Personal: Mag. M. Unsöld

Institution: Waldrappteam.at; ?

Abstract: Research on birs migration is traditionally focussed on genetically determined behavioural patterns. Despite numerous data and anecdotes indicating a high relevance of social learning, systematic investigations on the relationship between genetic determination and social tradition in bird migration are rare. White storks (Ciconia ciconia), for example, are known to have a genetically determined migration preference (east and west). However, cross fostering experiments indicate a superimposed impact of social information: offspring take over the migration route of their (foster) parents. In Northern bald ibises (NBI, Geronticus eremita) timing of the migration seems to be genetically determined while the migration route and the wintering destination is a socially learned tradition (Fritz et al. 2006). Thus, there seems to be a gradual variation in the impact of social information on the determination of an individual's migration behaviour. Clearly, the ability to acquire social information needs an appropriate social context. NBI, for example, are known to have a particularly close and long lasting parent-offspring relationship. This is also being manifested in a particularly long-lasting and close relationship to human foster-parents. Thus, we assume that the relationship between genetic determination and social tradition in birds' migration behaviour is related to the social system. The project aims to compare the migration behaviour and the social system within the group of Ciconiiformes.

Conference Contributions

Fritz, J., Feurle, A. & Kotrschal, K.. Corticosterone pattern in Northern Bald Ibises during a human-led migration. Poster; International Ornithological Conference, Hamburg 2006.

- Fritz, J., Feurle, A. & Kotrschal, K.. Physiological regulation of birds migration: a study with northern bald ibises undergoing human-led autumnal migration. Talk, Europ. Conf. for Behav. Biol., Belfast 2006.
- Fritz, J., dell'Omo, G., Tonissi, G. & Tredanaro, V. Tracking flight patterns by the use of GPS data loggers. Poster, International Ornitholgical Conference, Hamburg 2006
- Riedler, B., Fritz, J. & Kotrschal, K.. New opportunities for the study of bird migration: Tracking the flight patterns of sub-adult migratory birds with GPS data logger. Poster; International Ornithological Conference, Hamburg 2006.
- Zoufal, K., Fritz, J., Bichler, M. Kirnbauer, M, Markut, T., Meran, I. & Riedler, B.. Feeding ecology of the Northern Bald Ibis in its European winter and summer habitat: An experimental field Study with hand-raised individuals. Poster; International Ornithological Conference, Hamburg 2006.
- Riedler, B., Fritz, J., Tonissi, M. & Kotrschal, K.. Human-led migration and the use of GPS data loggers offers new opportunities to study birds migration: tracking the flight patterns of sub-adult migratory birds. Poster, Europ. Conf. for Behav. Biol., Belfast 2006.

Scientific Publications

- Fritz, J., Feurle, A. & Kotrschal, K. 2006. Corticosterone pattern in Northern Bald Ibises during a human-led migration; Abstract. Journal of Ornithology, Vol.147/5, 168.
- Fritz J., Feurle A., Kotrschal, K. subm. Fecal corticosterone monitoring in Northern Bald ibis (*Geronticus eremita*) undergoing human-led autumnal migration. General and Comparative Endocrinology
- Fritz, J., Bichler, M., Kirbauer, M., Markut, T., Riedler, B., Wolf, A., Kotrschal, K. in prep. Feeding Ecology of Northern Bald Ibis winter and summer habitat Outdoor study with a group of handraised individuals. IBIS.
- Riedler, B., Fritz, J. & Kotrschal, K. 2006. New opportunities for the study of bird migration: Tracking the flight patterns of sub-adult migratory birds with GPS data logger; Abstract. Journal of Ornithology, 147/5, 237-238.
- Zoufal, K., Fritz, J., Bichler, M. Kirnbauer, M, Markut, T., Meran, I. & Riedler, B. 2006. Feeding ecology of the Northern Bald Ibis in its European winter and summer habitat: An experimental field Study with hand-raised individuals; Abstract. Journal of Ornithology, 147/5, 279.

Scientific Projects

- Aybar, C. Pre-migratory physiology of Northern Bald ibises (*Geronticus eremita*): serum-analysis of endocrinological and metabolic parameters. Practical training.
- Cimadom, A. Changes in the diurnal activity pattern of Northern bald ibises (*Geronticus eremita*) during pre-migration phase. Practical training.
- Feurle, A. Fecal corticosterone monitoring in northern bald ibis (Geronticus eremita) undergoing humnled migration. Bachelor Paper, University Innbruck, 2006.
- Schiestl, M. Spatio-temporal activity pattern and habitat preference of Northern bald ibises: a study with a free flying colony in Carinthia by the use of GPS data loggers. Practical training.

Print Media (incomplete)

Die Rückkehr der Waldrappe. Germany: Ein Herz für Tiere.

Fünf Waldrappe auf dem Heimweg nach Österreich. Austria: Der Standard.

Waldrappe fliegen über Kärnten. Austria: Kleine Zeitung.

Waldrappe auf dem Weg ins Almtal. Austria: Salzkammergut Internetzeitung.

Unsere Mama ist ein Flugzeug: Germany: Neue Welt.

Waldrapp-Flug ins Almtal abgesagt: Alice und Arelia kamen bis Friaul. Austria: Oberösterreichische Nachrichten.

Das Waldrapp-Projekt. Germany: DWV-News, Deutscher Wildgehegeverband.

Flugstunden für schräge Vögel. Germany: GEO.

Talks

Fritz, J. Projekt Waldrappteam.at: Alternaitve Methoden des Artenschutztes. Talk, Freunde des Zoo Köln, Germany.

Fritz, J. Artenschutz und Forschung: Die österreichischen Waldrapp Projekte. Talk, Ornithl. Arbeitsgemeinschaft, Innsbruck. Austria.

Fritz, J. & Riedler, B. Das Projekt Burghausen. Talk, Burghausen, Austria.

Fritz, J. Das Waldrapp-Projekt: 4 Jahre Artenschutz und Forschung. Talk, Treffen der österr. Zoopädagogen, Innsbruck, Austria.

Fritz, J. Physiological regulation of birds migration: a study with northern bald ibises undergoing human-led autumnal migration. Talk, Europ. Conf. for Behav. Biol., Belfast.

Indroduction

Picture 1: Flight over Venice, Migration 2005; Picture M. Unsöld.

The project waldrappteam.at is entering its fifth year. We attempt to teach hand-raised waldrapp ibis (*Geronticus eremita*; NBI) a migration tradition from the breeding area to an appropriate wintering place. In August 04 we led the first group of birds from northern Austria to a wintering area in southern Tuscany. These birds have been living live in the wild since April 05. This year a second group was led to Tuscany.

In the context of the migration project we are also carrying out a research program on migration disposition and migration physiology. Physiological data collected during the autumn migration in 2004 presents a characteristic pattern for migratory birds. Human-led migration has proven to be an innovative method for the study of bird migration. The physiological data allow evaluating human-led migration as a method for birds conservation and reintroduction.

Each former and recent NBI free-flight and conservation project faces autumn migration as the major management problem, e.g. the former Birecik projekt (Arihan 1999), the Grünau project (Kotrschal 1999), the Syrian project (Serra 2004) and just recently the Spanish project. Thus, gain of knowledge on NBI migration and a method to control migration of released birds pointed out to be crucial topics for conservation as well as for introduction.

A further major research topic, in close cooperation with the Konrad-Lorenz-Research-Station, focuses on the ecology, particularly the feeding ecology, of the Waldrapp. Published information on their feeding behaviour and on the food taken has been rather anecdotal. Funded research is needed as a basis for conservation and reintroduction attempts. For this project we have studied free-flying groups of hand-raised birds in three different European regions.

Autumn Migration 04

The first successful migration started on August 17th 04. On Sept. 22nd we arrived with 7 birds in the wintering region, the WWF nature reserve Laguna di Orbetello in southern Tuscany.

People from our team cared for these seven birds over the winter. On April 8th 2005 the foster parent left the birds. From now on the birds were independent without any additional food supply. Local workers from the WWF Italy monitored them without having any direct contact with the birds.

Vernal migration 2005

Firstly, the birds remained in the area and could be monitored daily. However, on May 20th they disappeared. During the following time we got two reliable sight reports: one on May 30th in Fiesso d'Artico near Venice and the other on June 6th north of Lignano (Fig.1). On June 22nd, all seven birds arrived back in the Laguna. Thus, they left the Laguna for a month and seemed to follow the migration route northwards for at least 650 kilometres before they turned back to the Laguna.

This behaviour is well known from immature migratory birds. They stay in the wintering place yearround until they reach sexual maturity, but during spring and summer they increase their home range and make longer journeys.



Picture 2: The red line indicates the route of the autumn migration. The numbers indicate positions during vernal migration: (1) May 20th: Birds left from the Laguna; (2) May 30th: Fiesso d'Artico near Venice; June 6th: north of Lignano; June 22nd: back in the Laguna.

Autumn Migration 2005

In 2005 we use another microlight with an old fashioned wing and a powerful engine. The speed of this microlight is less than 40 km/h and therefore well-suited to that of the birds. As a consequence, the flight pattern changed totally. All birds kept lose contact to the plane and follow it to every flight level needed without problem. This was a methodological breakthrough.

On August 18th 05 the migration started. Neither the Alps nor the Apennines caused major problems. We followed the same route as last year but we used fewer and partly different stopovers (see Table 1). On Sep. 8th we reached the wintering area.

Year	Mean Airspeed	Mean daily distance	Flight days	Total duration
2005	38 km/h	86 km	10 days	22
2004	45 km/h	62 km	14 days	37

Table 1: Comparison Migration 2004/05

Wintering at the Laguna 2005/06

Just after the arrival we put the birds in an aviary which we had built up in the nature reserve on the same place as the previous years.



Picture 3: Tuscany, September 2005: Bird from 2004 arriving at the aviary after months of independence. After these time of independence they were still very tame. Peter Pilz; Picture M. Unsöld.

Two days later, on Sept. 10th, all seven birds from the previous year appeared at the aviary. They immediately approached the foster parents, followed them into the aviary and begged for food. It was rather surprising, that in this situation the birds behaved that tame, even to unfamiliar people. During the last month they became rather shy and fled from the feeding meadows as soon as people approached closer than 40 meters.

All birds have been in a very good condition with magnificent plumage. The average weight (1.29 \pm 0.09 kg) was even higher than at the end of March, i.e. before they became independent (1.27 kg \pm 0.09 kg). A veterinary of the University of Bologna certified a very good state of health.

For some days all 14 birds remained in the aviary. Free flight started again on September 23rd. The birds still use the aviary as night roost. In the morning we open a sluice which has been integrated in the aviary. The birds search for food on pastures and meadows in the nature reserve and in the

surrounding farmland (in a range of some 5 km from the aviary). In the later afternoon they return to the aviary and follow the keeper into the aviary. There they get some additional food. This will support the regular return to the aviary and stabilize their familiarity with the keeper.



Picture 4: Tuscany, winter 2005/06. Wolfgang Auer from the Alpenzoo Innsbruck during a visit in January 2006. Picture J. Fritz.

Normally all birds form a single group during free flight. If they split up, they do it in mixed age groups. That is a great advantage for the younger, inexperienced birds benefiting from the olders' experiences.

Northern Bald Ibises get sexually mature and start breeding usually after the third winter. Birds from zoo colonies sometimes start to breed already after the second winter. Thus, our birds from the 2004 generation may return to Austria earliest in spring 2006, most probably in spring 2007.



Picture 5: Since October 2005 local members of WWF Italy care for the birds. They can even hand-feed the birds of the last generation. They take daily records about the birds' activities and the meteorological conditions. Picture J. Fritz.

Data collection: Migration physiology

Before and during the migrations of 2004 and 2005 we collected physiological data, mainly samples of the faeces as a non-invasive method to determine corticosterone values, activity measurements and other behavioural parameters, aside from ingestion and weight.

Data of the pilot study collected during the 2005 migration have been analysed and will be published in the course of this winter.



Picture 6: Laguna die Orbetello. Position of the Aviary and the feeding places. The circle indicate a radisu of about 3.5 km. Usually the bires use a meadow regularly. for about 2 to 3 weeks bevor they change to another meadow. Graph M. Tonissi.

Two major outcomes:

 At the beginning of August the birds showed physiological changes which are characteristic for birds preparing for migration: they increase faecal corticosterone, weight and morning activities.
During the migration different patterns of faecal corticosterone indicated physiological adaptations on specific migration demands.

Additional data collections during the 2005 migration will be analysis during winter.

Data collection: Feeding ecology

In spring 2005 we carried a group of eight hand-raised Bald Ibises from the game park Rosegg, Carinthia, to Burghausen, Bavaria. From the end of June to the beginning of August the birds flew freely over the southern outskirts of the town. Two members of our team (Mag. Barbara Riedler, Martin Bichler) took data on feeding ecology.



Picture 7: Burghausen, Bavaria, summer 2005: During free flight the birds stay close to the well known keeper (B. Riedler). This allows the observation of the feeding behaviour in detail.

Burghausen was already the third region where data with free-flying groups of hand-raised birds have been collected systematically on different types of habitats. Thus, during the last years data collection on feeding ecology took place in two regions north of the Alps (summer regions: Burghausen and valley Almtal, Upper Austria) and one in the southern Tuscany (winter region: Laguna di Orbetello, Tuscany).

Some outcomes:

(1) In all regions the birds' food consists mainly of worms, larva, beetles and snails. Jumping, fast running or flying invertebrates as well as small vertebrates contribute just marginally to the birds' diet. Thus, what the animals mainly feed on can be ecologically characterised as 'slow motion invertebrates'.

(2) Most of the prey animals are pulled out of a depth of 2 to 10 cm of the soil.

(3) Only few other species of birds use the same cultural ecosystems as the Bald Ibises, and most of them have a different hunting technique. This has been particularly evident in the wintering area giving residence to large crowds of birds of different species. Most of them are just using the Laguna for ingestion, including species with a tactile hunting technique similar to that of the Bald Ibises, e.g. the Curlew (*Numenius arquata*), and the Glossy Ibis (*Plegadis falcinellus*).

(4) The only species which is systematically linked to the same habitats, particularly to pastures, is the Cattle egret (*Bubulcus ibis*) sprawling as a breeding bird in Italy since the 1970's. Both species occur sympatric but they have clearly different hunting techniques. The Bald Ibis is hunting with tactile sensation by poking in the ground. The Cattle egret is hunting optically, characteristically catching invertebrates startled by grazing animals.

(4) Burghausen turned out to be the most efficient habitat concerning nutrition (average bits per 5 minutes: 8.54 ± 1.12) compared to Upper Austria (6.68 ± 2.32) and Tuscany (3.56 ± 0.51). In both summer regions the birds can easily cover their energetic needs (field metabolic rate). In Tuscany food supply is also sufficient during winter, when birds do not breed and have lowered their energetic needs.

Other activities 2005

Exhibition inatura-Dornbirn, Vorarlberg

From February 27th to April 25th we presented our activities in a museum in Dornbirn, Vorarlberg. The pre-fabricated exhibition consists of multimedia installations, interactive boxes and information panels. It attracted about 11.000 visitors.

Exhibition and hand-raising at the Schmiding Zoo



Picuter 7: Exhibiton , The flight of the Waldrapp' in the Zoo Schmiding near Wels, Upper Austria.

The same exhibition has been presented in the Zoo of Schmiding, Upper Austria, from May 3^{rd} until July 10^{th} . It was combined with hand-raising of six birds by two members of the team (A. Wolf, K. Zoufal). Visitors could observe the work of the foster parents through a pane (at a distance of 4 m) and view the details live on a screen. The birds have been brought from Schmiding to Waidhofen a.d. Thaya mid of June, just before they started to fledge.

Free flight Waidhofen/Thaya



Picture 8. Huge Waldrapp sculpture on the outskirt of the city Waidhofen a.d. Thaya. Katharina Zoufal; picture J. Fritz.

Mid of June the six birds hand-raised at the Schmiding Zoo changed to a village near Waidhofen/Thaya. A very active local club (<u>www.waldrapp.at</u>) built a spacious aviary for the Bald Ibises, and in spring 2005 they raised a huge Bald Ibis statue on a roundabout in Waidhofen.

These six birds have been flying free till the end of July 2005. Than they changed to the other birds in the aviary. They served as a reference group for the data collection on migration physiology. In addition, the tameness of the hand-raised birds immediately lowered the timidity of the other birds in the aviary towards the keeper.

Symposium November 2005

On November **11th** the Symposium on Experimental Free-Flight Projects in Austria took place in the Schmiding Zoo, Upper Austria. Its aim was to inform the participants about the activities of the three Austrian free-flight projects. The actual outcomes have been related to the IUCN re-introduction guidelines.

Almost 40 persons joined the symposium, including politicians and NGO representatives from Austria, Bavaria and Switzerland.



The symposium was organised by the newly founded ARGE Waldrapp-Freiflugprojekte (Working Group Bald Ibis Free-Flight Projects): Konrad Lorenz Research Station, Game-Park Rosegg and Waldrappteam.at.

Continuation of the project in 2006 and 2007

(1) In spring 2006 the ibis generation of 2004 may return from Italy. We try to get suitable tracking techniques (satellite transmitters via UMTS and GPRS) to follow their spring migration. This would be highly relevant, for conservation as well as for migration research.

(2) If the birds do return from Italy we expect them to start breeding. So, monitoring and care would be a major topic during spring and summer 2006.

(3) The birds in Tuscany will still be managed by the members of WWF Italia.

(4) The symposium and a further meeting with officials of BirdLife Austria will outline further needs for research activities based on the IUCN re-introduction guidelines. Together with the members of the ARGE Waldrapp-



Martin Bichler



Leopold Feichtinger







Angelika & Emmanuel Fritz



Angelika Kirtz

Freiflugprojekte we will work on these topics in the context of a feasibility study, e.g. genetic analyses, habitat availability studies, modelling a reintroduction scenario.

(4) For a feasibility study we need further knowledge on the migration behaviour of the birds. It would be of particular interest to start a migration from another location north or south of the Alps and to lead the birds along the same route to the wintering area.

(5) We are planning to hand-raise another group of birds in a zoo, together with an exhibition on our project and the possibility for the visitors to observe the foster parents raising the birds as we did last year in the Schmiding Zoo.

(6) We want to test some changes and further improvements in the procedure of the human-led migration. In particular, it is still a major organisational problem, that hand-raising and care for the birds as well as piloting the microlight has to be done by the same person. That is a great challenge, and it is very difficult to find people with these qualifications. We think about methodological changes to solve this particular problem.

(7) We will continue our research on migration physiology. We hope for the support of a graduate student. Furthermore we intend to apply for a grant by the Austrian Science Fund (FWF).

Acknowledgement

Thanks to all people and institutions, mentioned and not mentioned below, who supported our project during the last year.

Sponsors 2004/05

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Peter Pilz



Förderverein waldrappteam.at

Obmann: S.H. Prinz Emanuel von und zu Liechtenstein; Geschäftsführer: Univ. Prof. Dr. Kurt Kotrschal; Wissenschaftlicher Beirat: Dr. Christiane Böhm, Dr. Dagmar Schratter, Univ. Prof. Dr. Kurt Kotrschal, Dr. Fabio Perco; Gründungsmitglieder: Konrad-Lorenz-Forschungsstelle Grünau; Tiergarten Schönbrunn Wien; Alpenzoo Innsbruck; Tierpark Rosegg; Cumberland Wildpark Grünau

Team 2004/05

Bichler, Martin; Crisalli, Joseph; Feichtinger, Leopold; Feurle, Alexander; Feurle, Patrick; Fraberger, Raffaelo; Fritz, Angelika & Emmanuel; Kirtz, Angelika; Kirtz, Angelika; Kirtz, Manfred; Knorr, Andreas; Pilz, Peter; Riedler, Barbara; Riener, Robert; Seba, Ramona; Tonissi, Michele; Trapp, Claus-Michael; Tredanaro, Viviana; Unsöld, Markus; Wolf, Alexandra; Zoufal, Katharina

Literature cited

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Fritz, J. 2004. The Scharnstein Project: establishing a migration tradition with handraised Waldrapp Ibises. In: Dollinger P. (Ed.) WAZA Magazine, Nr. 5, pp. 16-19.

Kotrschal, K. 2004. The Grünau Project: establishing a semi-wild colony of Waldrapp Ibis. In: Dollinger, P. (Ed.) Waza Magazine, Nr. 5, pp. 12-15.

Thaler, E. 2004. The Hermit or Waldrapp Ibis: some etho-historical comments. In: Dollinger P. (Ed.) Waza Magazine , Nr. 5, pp. 4-7.



Viviana Tredanaro







Katharina Zoufal

Articles and presentations 2005

ARTICLES			
Deutscher			
Wildgehegeverband e.V.			
NEWS	Deutschland	Waldrappe.	
Natur und Land / Heft4	Österreich	Ein Ibis namens Waldrapp.	
Corriere della Sera	Italien	In volo col populo migratore.	
Grasuinen	Holland	Kom Waldi's, kom.	
Vorarlberger Nachrichten	Österreich	Waldrappen fliegen wieder.	
WWF Italy Panda			
Magazin	Italien	Leopold e'l eremita.	
INATURA			
Veröffentlichung	Osterreich	INATURA Spurenleser; Themenschwerpunkt Waldsrapp.	
INATURA	=		
Veröffentlichung	Österreich	INATURA aktuell, Die Waldrappe fliegen wieder.	
Zoo Schmiding	Osterreich	Einladung zur Ausstellungseröffnung.	
Oberösterreichische	=		
Nachrichten	Österreich	Sonderausstellung Waldrapp im Zoo Schmiding eröffnet.	
Tiroler Tageszeitung	Osterreich	Nachwuchs für das Waldrapp Projekt.	
	Italien	Rückmigration, Publikationen Italien	
Kronen Zeitung	Österreich	Ausstellung Schmiding.	
OÖ Nachrichten	Österreich	Waldrappe haben es sich überlegt: Fürs erste beliben sie in Bella Italia.	
Blattsalat,			
Jugendzeitschrift	Deutschland	Der Waldrapp - ein Kult-Urvogel.	
Universum Magazin	Österreich	Eimals Toskana - Alpen und retour.	
Natur+Kosmos	Deutschland	Flugschüler mit Sturmfrisur.	
Museum Education &			
Partnerships	Österreich	Museums' Coming-of-Age: Finding Partnership Enhancing.	
Salzburger Nachrichten	Österreich	Erster Klasse in die Toskana geflogen.	
Krone Oberösterreich	Österreich	Waldrapp-Odyssee hat ein Happy End.	
Oberösterreichische		Bravo! Nächste Waldrappgruppe schafft die	
Nachrichten	Österreich	Alpenüberquerung.	
Neue Ruhr Zeitung	Deutschland	Vogelvater Fritz fliegt vor.	
Öko-L, Naturkundliche			
Station der Stadt Wien.	Österreich	Die wunderbare Reise der Waldappe.	
Salzkammergut		Waldrappe bewähren sich in der Freiheit und bleiben	
Internetzeitung	Osterreich	vorerst im Wintergebiet.	

PUBLICATIONS			
Fritz, J.	WAZA Magazin Nr. 5	Switzerland	The Scharnstein Project: Establishing a migration tradition with handraised Waldrapp lbises.
Fritz, J.	Öko-L, 3, 33-36	Austria	Die wunderbare Reise der Waldrappe, Artenschutz, Forschung, Abenteuer.
Fritz, J.	Monticula 96, Bd. 9	Austria	Migration 2004. Beobachtungen zum Orientierungs- und Navigationsvermögen der Waldrappe.
Fritz, J., Markut,T Kotrscha	Bichler, M., Kirbauer, M., ., Riedler, B., Wolf, A., I, K.	in prep.	Feeding Ecology of Northern Bald Ibis winter and summer habitat Outdoor study with a group of handraised individuals.
Fritz J., F	Feurle A., Kotrschal, K.	in prep.	Fecal corticosterone monitoring in Northern Bald ibis (Geronticus eremita) undergoing human-led autumnal migration.

TALKS			
Fritz, J.	Austria, Völs	Grüne Völs	Der Flug des Ibis; Waldrappe fliegen mit ihren Zieheltern durch Europa
Fritz, J.	Germany, Giessen	University	Der Flug des Waldrapp; Grundlagenforschung und Migrationsprojekte 2003/04
Fritz, J.	Germany, Burghausen	Bund Naturschutz	Der Flug des Ibis; Waldrappe fliegen mit ihren Zieheltern durch Europa
Fritz, J.	Austria, Vienna	University	Artenschutzprojekt Waldrappteam.at
Fritz, J.	Germany, Stift Benediktbeuern	Zentrum für Umweltkunde (ZUK)	Artenschutzprojekt Waldrappteam.at
Fritz, J.	Germany, Köln	Freunde des Zoo Köln	Projekt Waldrappteam.at: Alternaitve Methoden des Artenschutztes
Fritz, J.	Austria, Innsbruck	Ornithl. Arbeitsgemeinschaft	Artenschutz und Forschung: Die österreichischen Waldrapp Projekte
Fritz, J.	Austria, Zoo Schmiding	Verein der Förderer	Ausstellungseröffnung: Artenschutzprojekt Waldrappteam.at
Fritz, J.	Austria, Zoo Schmiding	Rotary Club	Der Flug des Waldrapp