



On the following pages you find abstracts and summaries of new papers with „Whinchat in main focus“ that were mostly published in 2017. The language depends on availability. Please help us to keep our ‚paper shows‘ as fully as possible and send us abstracts of your newest publications (English preferred).

Africa/International

Blackburn E, Burgess M, Freeman B, Risely A, Izang A, Ivande S, Hewson C, Cresswell W 2017: Low and annually variable migratory connectivity in a long distance migrant: Whinchats *Saxicola rubetra* may show a bet-hedging strategy. Ibis 159, 902-918. 10.1111/ibi.12509

Abstract: The spatial scale of non-breeding areas used by long distance migrant animals can vary from specific, relatively small non-breeding areas for each independent breeding population (high connectivity) to a distribution over a large non-breeding area with mixing of breeding populations (low connectivity). Measuring variation in the degree of connectivity and how it arises is crucial to predict how migratory animals can respond to global habitat and climate change because low connectivity is likely an adaptation to environmental uncertainty. Here, we test whether use of non-breeding areas in a long distance migrant may be stochastic by measuring the degree of connectivity, and whether it is annually variable. 29 wintering Whinchats tagged with geolocators over two years within 40km² in central Nigeria were found breeding over 2.549 million km² (26% of the land area of Europe), without an asymptote being approached in the rela-

onship between area and sample size. Ranges differed in size between years by 1.506 million km² and only 15% of the total breeding range across both years overlapped (8% overlap between years when only first year birds were considered), well above the range size difference and below the proportion of overlap that would be predicted from two equivalent groups breeding at random locations within the observed range. Mean distance between breeding locations (i.e. migratory spread) differed significantly between years (2013, 604 + 18km; 2014, 869 + 33km). The results showed very low and variable connectivity that was reasonably robust to the errors and assumptions inherent in the use of geolocators, but with the caveat of only two years' ranges to compare, and the sensitivity of range to the breeding locations of a small number of individuals. However, if representative, the results suggest the scope for between-year variation (cohort effects) to determine migrant distribution on a large scale. Furthermore, for species with similar low connectivity, we would predict breeding population trends to reflect average conditions across large non-breeding areas: thus, as large areas of Africa become subject to habitat loss, migrant populations throughout Europe will decline.

Blackburn E, Cresswell W 2015: Fine-scale habitat use during the non-breeding season suggests that winter habitat does not limit breeding populations of a declining long-distance Palearctic migrant. *Journal of Avian Biology* 46, 622-633.

Abstract: For migrant birds, what habitats are suitable during the non-breeding season influences habitat availability, population resilience to habitat loss, and ultimately survival. Consequently, habitat preferences during winter and whether habitat segregation according to age and sex occurs directly influences migration ecology, survival and breeding success. We tested the fine-scale habitat preferences of a declining Palearctic migrant, the Whinchat *Saxicola rubetra*, on its wintering grounds in West Africa. We explored the influence of habitat at the territory-scale and whether dominance-based habitat occupancy occurs by describing the variation in habitat characteristics across wintering territories, the degree of habitat change within territories held throughout winter, and whether habitat characteristics influenced territory size and space-use within territories or differed with age and sex. Habitat characteristics varied substantially across territories and birds maintained the same territories even though habitat changed significantly throughout winter. We found no evidence of dominance-based habitat occupancy; instead, territories were smaller if they contained more perching shrubs or maize crops, and areas with more perching shrubs were used more often within territories, likely because perches are important for foraging and territory defence. Our findings suggest that Whinchats have non-specialised habitat requirements within their wintering habitat of open savannah and farmland, and respond to habitat variation by adjusting territory size and space-use within territories instead of competing with conspecifics. Whinchats show a tolerance for human-modified habitats and results support previous findings that some crop types may provide high-

quality wintering habitat by increasing perch density and foraging opportunities. By having non-specialised requirements within broad winter habitat types, migrants are likely to be flexible to changing wintering conditions in Africa, both within and across winters, so possibly engendering some resilience to the rapid anthropogenic habitat degradation occurring throughout their wintering range.

Leisler B, Flinks H, Fiedler W 2017: Nahrung und Nahrungserwerb überwinternder und afrotropischer Schmärtzer (*Saxicolinae*, *Muscicapidae*) in Kenia. *Ökol. Vögel* 35/36, 209-229.

Reduced Summary: We investigated habitat choice, diet spectrum and prey size in eight „chats“ which can temporarily interact with each other and the barren lands and short-grass savannahs of Kenya. The species in this guild preying on ground-dwelling arthropods are Northern Wheatear (*Oenanthe oenanthe*), Isabelline Wheatear (*Oenanthe isabellina*), Pied Wheatear (*Oenanthe pleschanka*), Whinchat (*Saxicola rubetra*), and Common Rock-thrush (*Monticola saxatilis*), plus the African species Mourning Wheatear (*Oenanthe lugens shalowi*) Capped Wheatear (*Oenanthe pileata*), and Northern Anteater-chat (*Myrmecocichla aethiops*).

As the most extreme perch strategist and the smallest species at ca. 16g, the diet of Whinchat differed most from the other species by the high proportion of beetles, many Lepidopteran caterpillars, and the highest proportion of bugs (*Hemiptera*), as well as by the absence of termites. In addition, extreme perch strategists, such as Whinchat, appear to be less able to switch between both techniques - hunting from higher perches or over wide areas on the ground. The flexibility to be able to switch from one strategy to another probably accounts for the regional variation in foraging detected in some species, which is presumably strongly affected by the structuring of the habitats.

Risely A, Blackburn E, Cresswell W 2015: Patterns in departure phenology and mass gain on African non-breeding territories prior to the Sahara crossing for a long-distance migrant. Ibis 157, 808-822.

Abstract: Afro-Palaeartic migrants are declining to a greater degree than other European species, suggesting that processes occurring in Africa or on migration may be driving these trends. Constraints in food availability on the wintering grounds may contribute to the declines but little is known about when and where these resource constraints may occur. Sufficient resources are particularly important prior to spring migration, when migrants must cross the Sahara desert. We examined mass gain and departure phenology in a long-distance Palaeartic passerine migrant to determine the degree to which pre-migratory fattening occurs in their long-term non-breeding territories in the Guinea Savannah region of Africa. We monitored 75 Whinchats *Saxicola rubetra* for departure from their non-breeding territories in one spring, and analysed mass data of 377 Whinchats collected over three non-breeding seasons plus 141 migrating Whinchats caught in April over eight years, all within the same few square kilometres of anthropogenically-modified Guinea Savannah in central Nigeria. Whinchats left their winter territories throughout April, with males departing on average eight days earlier than females. However, there was no evidence that time of departure from territory was linked to age, body size or mass at capture. Whinchats departed their territories with a predicted mass of $16.8 \pm 0.3\text{g}$, which is much less than the $\sim 24\text{g}$ required for the average Whinchat to cross the Sahara directly. Comparing departure dates with arrival dates in southern Europe shows a discrepancy of at least two weeks, suggesting that many Whinchats spend considerable time on pre-migratory fuelling outside of their territory prior to crossing the Sahara. Over-wintering birds gained mass slowly during February and March (0.03gd^{-1}), and non-territorial or migrating birds at a much

higher rate in April (at least 0.23gd^{-1}), with up to 20% of migrating Whinchats in April potentially having sufficient fuel loads to cross the Sahara directly from central Nigeria. Our results suggest that most Whinchats leave their winter territories to fatten up locally or, possibly, by staging further north. Resource constraints are therefore likely to be particularly focussed in West Africa during mid-April and possibly at staging areas before the crossing of the Sahara desert.

Belgium

Dahmen R 2016: Mesures de sauvegarde pour la dernière population importante de Tariers des prés en Wallonie. Forêt.Nature 140, 25-30.

Mesures de sauvegarde pour la dernière population importante de Tariers des prés en Wallonie René Dahmen Cantonement d'Elsenborn (DNF, SPW-DGO3). La situation du Trier des prés s'est fortement dégradée en Belgique au cours des 40 dernières années et on peut même parler d'une évolution dramatique. Il ne subsiste plus qu'une population importante de tariers (plus de 130 couples) dans l'Est du pays, sur la plaine du camp militaire d'Elsenborn et dans la RND de la Schwalm. Au cours des 10 dernières années, il a été possible d'augmenter cette population de 30 % grâce à des mesures spécifiques prises au niveau de l'habitat. Les mesures les plus importantes sont l'ouverture du paysage par débroussaillage et la gestion des nardaias à fenouil et landes par des feux contrôlés. Ces travaux ont partiellement été financés par un projet LIFE (2006-2010).

Germany

Evers A, Sohler J, Hötter H 2017: Populationsökologische Untersuchungen zum Braunkehlchen in Schleswig-Holstein. Projektbericht für das Ministerium für Energiewende, Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein, 27p.

Download: <https://bergenhusen.nabu.de/forschung/braunkehlchen/index.html>

Zusammenfassung: Im Jahr 2017 wurde das Projekt „Populationsökologische Untersuchungen zum Braunkehlchen in Schleswig-Holstein“ im Auftrag des MELUND im dritten Jahr am Michael-Otto-Institut im NABU weitergeführt. Es wurden auf 2511 ha Probefläche in der Eider-Treene-Sorge-Region (ETS) Untersuchungen durchgeführt.

Insgesamt konnten 44 Reviere des Braunkehlchens festgestellt werden. Dies entspricht einer Abnahme um 58 % im Vergleich zur letzten vollständigen SPA-Kartierung (2008-2012) und um 34 % im Vergleich zum Vorjahr. Nachdem im Jahr 2016 eine zwischenzeitliche Verbesserung der Bestandszahlen zu verzeichnen war, verringerte sich der Bestand im Untersuchungsjahr wieder auf das Niveau von 2015.

Von den 38 näher untersuchten Revieren konnte bei 17 Brutpaaren eine erfolgreiche Brut festgestellt werden. 11 Brutpaare verblieben ohne Bruterfolg und weitere 10 Reviere wurden von unverpaarten Männchen ausgemacht.

Es konnten 16 der 98 in den Vorjahren farb-

beringten Vögel wieder abgelesen werden. Dies entsprach einer Wiederfundrate von 16 % der beringten Altvögel und 5,8 % der Küken. Die Beringungs- und Ableseraten reichen trotz hohem Aufwand nicht aus, um innerhalb der Projektlaufzeit Zu- und Abwanderungs-, sowie Überlebensraten zu berechnen. Die Farbberingung wurde daher im Jahr 2017 nicht fortgeführt.

Daten zur Nahrungsökologie wurden für sieben erfolgreich brütende Paare ausgewertet. Die Untersuchungen hinsichtlich der zurückgelegten Distanzen während der Nahrungsflüge ergaben teils deutliche Unterschiede je nach Intensität der landwirtschaftlichen Nutzung in der Nestumgebung.

Brutvögel an landwirtschaftlich intensiv genutzten Standorten legten signifikant längere Distanzen zur Nahrungssuche zurück als solche an extensiv genutzten / ungenutzten Standorten. Auch war eine stärkere Bindung an lineare Saumstrukturen festzustellen.

Aus diesem Grund erscheint das Ausweiten der vorhandenen Säume zu breiten Brachestreifen als eine zielführende Schutzmaßnahme für Braunkehlchen, um geeignete Strukturen zur Nestanlage sowie ein gutes Nahrungsangebot in direkter Nestumgebung



Whinchat in Teuschnitzaue / Germany (Photo: © Jürgen FEULNER)

zu schaffen. Es werden verschiedene Umsetzungsmöglichkeiten für einen landesweiten Schutz vorgeschlagen und diskutiert.

Feulner J, Pfeifer R 2017: Bestandszusammenbruch des Braunkehlchens *Saxicola rubetra* im östlichen Oberfranken. Ornithol. Anz. 55, 139–145.

Summary: The population of Whinchats in eastern Upper Franconia decreased rapidly by 85 % from approximately 400 breeding pairs around 1990 to between 57 and 64 breeding pairs at time of writing (2015). The most probable reason behind this trend is the decline of meadows and pasture land. There is also an advance towards large agricultural holdings and thereby a loss of field boundaries, small patches of uncultivated land and other structures.

Feulner J, Schneider F, Siering M 2017: Silberstreifen am Horizont? Künstliche Singwarten für das Braunkehlchen. Der Falke 8/2017, 24-29.

The paper is mainly dedicated to the question ‚Can artificial perches be a useful instrument in Whinchat conservation?‘.

Schlemmer R 2017: Bedeutung einzelner Habitatparameter für Vorkommen und Bruterfolg des Braunkehlchens (*Saxicola rubetra*) im Inneren Bayerischen Wald. Jber OAG Ostbayern 37, 24-39.

Zusammenfassung: 1998 und 1999 wurden im Inneren Bayerischen Wald in den Landkreisen Regen und Freyung-Grafenau im Auftrag des Naturparkes Bayerischer Wald e.V. Braunkehlchen flächendeckend kartiert. Von Braunkehlchen besiedelt wurden Wiesenbrachen (140 Reviere), Mähwiesen (140 Reviere) und Weiden (52 Reviere). Der Bruterfolg war in Wiesenbrachen am größten. In Mähwiesen und Weiden wurden bereits damals viele Nester ausgemäht bzw. zer-

trampelt oder die Braunkehlchen durch die Weidetiere vertrieben. In Brachen war der Bruterfolg vom Vernässungsgrad weitgehend unabhängig. In Mähwiesen nahm er mit dem Vernässungsgrad zu. Als Ursache hierfür ist die spätere Wiesenmahd an nassen Standorten zu erkennen.

Über die restliche Krautschicht hinausragende Hochstaudenstängel begünstigen den Bruterfolg. Dichter Gebüschbewuchs beeinflusst diesen negativ. Einzelne Büsche können die Habitataignung jedoch insbesondere von Mähwiesen steigern. Zum Waldrand wird bei Wiesen und Weiden in der Regel ein Mindestabstand von 100 Metern eingehalten. Die für Braunkehlchen attraktiveren Wiesenbrachen wurden jedoch auch besiedelt, wenn ihr Abstand zum Waldrand nur zwischen 50 und 100 Meter betrug.



In 1998/99 Whinchats preferred fallow land as breeding habitat in the Bavarian Forest. (Photo: © Richard SCHLEMMER).

Tuschl H 2015: Ein neues Brutvorkommen des Braunkehlchens (*Saxicola rubetra*) auf einer Stilllegungsfläche bei Matting, Lkr. Regensburg. Jber OAG Ostbayern 35, 32 - 33.

In 2014 the author found a new breeding place of the Whinchat on a set aside area near Regensburg, Bavaria.



Whinchat near Matting, county of Regensburg, Bavaria, Germany, 2014 (Photo: © Heinz TUSCHL).

Russia

Shitikov D, Vaytina T, Makarova T, Fedotova S, Volkova V, Samsonov S 2017: Species-specific nest predation depends on the total passerine nest density in open-nesting passerines. J Ornithol 158, <https://doi.org/10.1007/s10336-017-1526-8>

Abstract: A large part of the variation in bird reproductive success is often explained by nest predation. Many studies report negative relationships between breeding density and reproductive success due to the predation effect. In this study, we tested the hypothesis that the total nest density should affect nest predation stronger than the nest density of a single species. We used a large sample ($n = 320$) of Booted Warbler *Iduna caligata* and Whinchat *Saxicola rubetra* nests obtained during a period of 6 years in abandoned fields. We used model selection to evaluate effects of density, nest age, season and year on daily nest survival rate. We used a single-species (the distance to the nearest conspecific nest and the number of conspecific nests around the focal nest) and total (the distance to the nearest nest of any passerine species and the total number of passerine nests around the focal nest) nest-density variables. Our results suggest that nest density affects nest survival negatively. Both Booted Warbler and Whinchat nests were more likely to be depredated when neighboring nests of any passerine

species were closer. Daily nest survival rates were better predicted by the total nest density than single-species nest density. We suggest that generalist predators performing an area-restricted search may play an important role in nest predation in abandoned fields. The total nest density should be estimated when studying density-dependent nest predation as conclusions about nest predation based on single-species nest densities may be incorrect. The potential impact of density-dependent predation on real nests should be considered when designing artificial nest experiments.

Vaytina T, Shitikov D 2017: Age-related changes in song repertoire size and song type sharing in Whinchat *Saxicola rubetra*. Bioacoustics. doi: 10.1080/09524622.2017.1408495

In many oscine passerines males' songs, the repertoire size increases with age. At the same time it often remains unknown when and where males learn new songs. To infer the Whinchat *Saxicola rubetra* song learning strategy, we described and catalogued song type repertoire, revealed age differences and examined song sharing strategies among neighbouring and distant males. We recorded song vocalizations of 40 males in a limited (104ha) study plot during four years. Whinchats produce short and discrete songs with clear intersong pauses. In total 45 song types were allocated, the individual repertoire size averaged 23.5 ± 7.6 song types (range 9–34 song types). The males' age significantly influenced the song type repertoire size. The second calendar year (first breeding) males had a lower repertoire size than the older males. The majority of song types were shared by less than half of males in our sample. The Jaccard similarity indexes varied from 0.5 to 0.7. We could not find a relationship between males' song sharing and geographic distances between their nests. We assume that Whinchat males learned new songs in the local population before territory establishment.



Whinchat in Udawalawe National Park, Sri Lanka, 08 February 2015 (Photos: © Klemens STEIOF).

Sri Lanka

Steiof K, De Silva C, Jayarathna J, Mädlow W, Pohl M, Püschel W, Zerning M 2017: Whinchat *Saxicola rubetra* in Sri Lanka in February 2015: First record for the island and the Indian Subcontinent. *Indian BIRDS* 13 (4), 108–111.

Discussion: The breeding range of the Whinchat is spread over a vast distance in the northern hemisphere, from western Europe to central Asia, until about 94°E (CLEMENT & ROSE 2015). In Asia its range is mainly north of the steppe zone, i.e., north of c. 50°N, though there is an isolated range in the Caucasian region. All birds spend the winter in sub-Saharan Africa, covering a few, to several thousand kilometers during their migration each autumn and spring.

Since the Whinchat is a very rare, or scarce, migrant on the Arabian Peninsula (CLEMENT & ROSE 2015), it is likely that the eastern populations leave their breeding grounds in a

more westerly direction, turning southwards, towards Africa, later on their migration. This is speculative, because most countries of south-western Asia are not well-watched by birders, particularly for passage migrants. On the other hand, the Whinchat is an easy bird to spot as it favours open habitats, preferring to sit on top of low vegetation: hence its rarity in south-western Asia, as a migrant, might be real. However, as a long distance migrant the Whinchat has clearly the potential to occur far away from the main migration routes. It is likely, that the observed bird arrived in Sri Lanka in the autumn of 2014, moved as far south as possible, selected an open habitat, and stayed there over the winter.

RASMUSSEN & ANDERTON (2012) listed the species as 'hypothetical' for South Asia. Until 2012, 454 bird species have been recorded in Sri Lanka (WARAKAGODA et al 2012). Our observation adds the Whinchat to the Sri Lanka list.

Switzerland

Korner P, Graf R, Jenni L 2017: Large changes in the avifauna in an extant hotspot of farmland biodiversity in the Alps. Bird Conservation International, 1-15. doi:10.1017/S0959270916000502

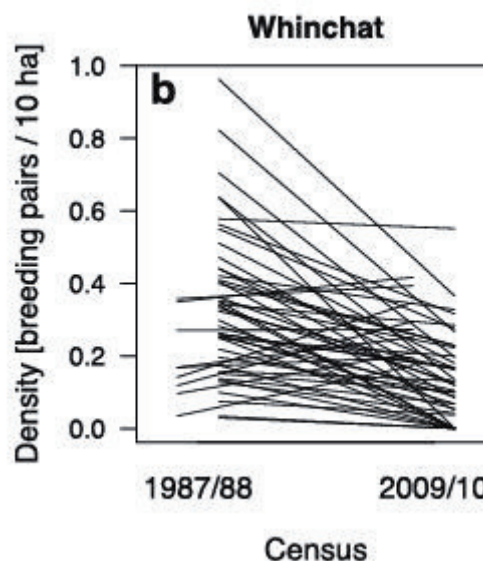
Summary: Large declines of farmland bird species have been observed in the lowlands of Western Europe, whereas important populations of some of these species have survived in parts of Eastern and Southern Europe and in small areas within Western Europe, e.g. in parts of the Alps. However, such extant hotspots of farmland biodiversity are at risk: The economic and technical developments threaten to erode biodiversity in existing hotspots, potentially repeating the collapse previously observed in Western Europe. We here present changes in the abundance of farmland birds in the Engadin in the Swiss Alps. Farmland birds such as Whinchat *Saxicola rubetra* and Skylark *Alauda arvensis* were still numerous in 1987/1988 when we first censused the area. During our second census period in 2009/2010, we noticed strong declines of such open country species (change in abundance: Whinchat 58% (Fig.1), Skylark 44%) while several hedge and tree breeders as well as some species preferring warmer climate increased. We observed

a good correlation between the change in the vegetation and in the birds. Both these changes were especially pronounced in areas with a recent agricultural improvement project. Thus, we believe that the change in farmland practices, which affected our mountainous study area much later than the lowlands, and possibly climate change, have led to a profound change in the regional avifauna. Using our data as a case study, we argue that similar, and similarly fast, changes may be on-going or imminent in many other areas with extant important populations of farmland species such as Whinchat and Skylark. We do not propose that the situation in extant regions of rich farmland biodiversity must be saved by conserving outdated farming practices. Biodiversity should not merely be a by-product of a lack of development and rural poverty. But there clearly must be types of modernisation that do not lead to the loss of most biodiversity without substitution and the erosion of a rich cultural landscape as seen in many parts of lowland Western Europe. Thus, our data add to the repeatedly declared urgency to adjust the advancement of agricultural subsidy systems to better accommodate biodiversity considerations, both in depauperated areas as well as in extant hotspots.

Fig. 1: Density (breeding pairs/10ha) of the Whinchat for the two census periods and for each study plot (52 plots). Increasing and decreasing cases are notched sideways for better readability.

Abb. 1: Beispiel Braunkehlchen: Dichte (Brutpaare/10ha) für die beiden Zählperioden in allen 52 Untersuchungsgebieten (UG). Um die Anzahl von Untersuchungsgebieten mit einer Zunahme besser von den Gebieten mit einer Abnahme unterscheidbar zu machen, wurden die Linien für die Abnahme nach rechts verschoben.

[KORNER et al 2017]



Zusammenfassung: In den Tieflagen von Westeuropa wurden bedeutende Bestands-einbrüche von Kulturland-Vogelarten beobachtet, während in Ost- und Südeuropa sowie auch in einigen kleineren Regionen in Westeuropa, z.B. in einem Teil der Alpen, auch heute noch wichtige Bestände dieser Arten vorkommen.

Doch auch diese noch existierenden Hotspots der Biodiversität im Kulturland sind gefährdet: die ökonomischen und technischen Entwicklungen in der Landwirtschaft drohen die Biodiversität auch hier zu untergraben, möglicherweise die Prozesse, welche zum Kollaps der Biodiversität im westeuropäischen Kulturland führten, zu wiederholen.

In dieser Studie zeigen wir die Veränderung der Häufigkeit von Kulturland-Vogelarten im Engadin, einem Schweizer Alpental. 1987/1988, als die erste Erhebung stattfand, waren Kulturland-Vogelarten wie das Braunkehlchen *Saxicola rubetra* und die Feldlerche *Alauda arvensis* häufig. Während der zweiten Felddaufnahme 2009/2010 bemerkten wir einen starken Rückgang bei diesen beiden Offenlandarten (Rückgang beim Braunkehlchen auf 58% des Ausgangswerts, siehe Abb. 1, bei der Feldlerche gar auf 44%). Demgegenüber wurden Hecken- und Baumbrüter sowie Vogelarten, die tendenziell ein wärmeres Klima bevorzugen, häufiger. Unsere Auswertungen ergaben eine Korrelation zwischen der Veränderung in der Vegetation und bei den Vögeln. Beide Veränderungen waren in Gebieten, wo zwischen den Zählperioden eine Melioration (bedeutet in der Schweiz eine umfassende Restrukturierung der ländlichen Räume) stattfand, am ausgeprägtesten. Daraus schliessen wir, dass die Veränderung in der Bewirtschaftungsweise v.a. die Intensivierung der Nutzung und Mechanisierung der Bewirtschaftung, Entwicklungen, die im alpinen Raum erst viel später einsetzten als in den Tieflagen, und möglicherweise auch der Klimawandel, zu einem tiefgreifenden Wandel in der regionalen Avifauna führten. Indem wir unsere Daten als Fallstudie verwenden, diskutieren wir, dass ähnliche und

ähnlich schnell vor sich gehende Entwicklungen in anderen, für das Braunkehlchen und die Feldlerche aktuell noch wichtigen Brutgebieten ablaufen oder zumindest einzusetzen drohen.

Die Erhaltung von biodiversitätsreichem Landwirtschaftsland kann allerdings nicht durch ein Einfrieren der landwirtschaftlichen Bewirtschaftungspraxis auf einem veralteten Stand erreicht werden. Biodiversität darf nicht zu einem Bei-Produkt von wenig entwickelten und ärmlichen ländlichen Räumen werden. Aber der Fortschritt in der landwirtschaftlichen Bewirtschaftung müsste auch Lösungen für den Erhalt der Biodiversität und von artenreichen Kulturlandschaften entwickeln. Welchen Raubbau die Modernisierung in der Landwirtschaft an der Biodiversität und der reichen Kulturlandschaft bewirkte, war in vielen Tieflagen Westeuropas zu beobachten. Unsere Erkenntnisse im Unterengadin reihen sich ein in die bereits zahlreichen Aufrufe, die Berücksichtigung der Biodiversität besser ins landwirtschaftliche Direktzahlungssystem einzupassen. Dies würde Ressourcen freigeben, um existierende Hotspots der Biodiversität zu sichern und inzwischen artenarme Regionen aufzuwerten.

United Kingdom

Border JA, Henderson IG, Ash D, Hartley IR 2017: Characterising demographic contributions to observed population change in a declining migrant bird. Journal of Avian Biology 48, 1139–1149. 10.1111/jav.01305

Populations of Afro-Palaearctic migrant birds have shown severe declines in recent decades. To identify the causes of these declines, accurate measures of both demographic rates (seasonal productivity, apparent survival, immigration) and environmental parameters will allow conservation and research actions to be targeted effectively. We used detailed observations of marked breeding birds from a 'stronghold' population of whinchats *Saxicola rubetra* in England (stable against the

declining European trend) to reveal both on-site and external mechanisms that contribute to population change. From field data, a population model was developed based on demographic rates from 2011 to 2014. Observed population trends were compared to the predicted population trends to assess model-accuracy and the influence of outside factors, such as immigration. The sensitivity of the projected population growth rate to relative change in each demographic rate was also explored. Against expectations of high productivity, we identified low seasonal breeding success due to nocturnal predation and low apparent first-year survival, which led to a projected population growth rate (λ) of 0.818, indicating a declining trend. However, this trend was not reflected in the census counts, suggesting that high immigra-

tion was probably responsible for buffering against this decline. Elasticity analysis indicated λ was most sensitive to changes in adult survival but with covariance between demographic rates accounted for, most temporal variation in λ was due to variation in productivity. Our study demonstrates that high quality breeding habitat can buffer against population decline but high immigration and low productivity will expose even such stronghold populations to potential decline or abandonment if either factor is unsustainable. First-year survival also appeared low, however this result is potentially confounded by high natal dispersal. First-year survival and/or dispersal remains a significant knowledge gap that potentially undermines local solutions aimed at counteracting low productivity.

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