

Azure Tits and hybrids Azure x European Blue Tit in Europe

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The 'blue tit complex' currently comprises up to eight (or even nine) species (depending on taxonomic treatment): Azure Tit *Cyanistes cyanus*, Yellow-breasted Tit *C flavipectus* (with the isolated subspecies *C f berezowskii* of north-central China possibly deserving species status), Tenerife Blue Tit *C teneriffae*, Palma Blue Tit *C palmensis*, Hierro Blue Tit *C ombriosus*, Gran Canaria Blue Tit *C chedwigae*, Ultramarine Tit *C ultramarinus* (with the little known Libyan Blue Tit *C u cyrenaicae*) and European Blue Tit *C caeruleus* (cf Harrap & Quinn 1996, Redactie Dutch Birding 2002, 2004, 2006, Kvist et al 2005, Sangster 2006). Note that many authors combine *teneriffae*, *palmensis*, *ombriosus*, *chedwigae* and *ultramarinus* in one species, North African Blue Tit, or two species: Ultramarine Tit (North African mainland and Fuerteventura and Lanzarote, Canary Islands) and Canary Islands

Blue Tit (western Canary Islands). In addition, *flavipectus* was formerly often considered a subspecies of Azure Tit (cf del Hoyo et al 2007). The mitochondrial phylogeny of these taxa has been previously studied and it was found that Azure Tit is phylogenetically placed within the European Blue Tit clade (Kvist et al 2005, Illera et al 2011; cf Sangster 2006, del Hoyo et al 2007). Their combined ranges extend across the entire Palearctic, with European Blue Tit mainly breeding in Europe, and Azure Tit in Asia (Martin 1991, del Hoyo et al 2007).

Hybrids Azure Tit x European Blue Tit *C cyanus* x *caeruleus* have been known since the early 20th century under the name 'Pleske's Tit' (Pleske 1912; cf Frank & Voous 1969, McCarthy 2006). From the north-western part of European Russia (from St Petersburg and Moscow to the Urals), many and

299 Azure Tit / Azuurmees *Cyanistes cyanus*, Uurainen, Finland, 22 February 2007 (Tom Lindroos)



Azure Tits and hybrids Azure x European Blue Tit in Europe



300 Azure Tit / Azuurmees *Cyanistes cyanus*, Polesie, Belarus, 28 April 2010 (Krzysztof Błachowiak) **301** Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus*, Grans, Bouches-du-Rhône, France, 30 December 2010 (Michel Carré) **302** Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus*, Grans, Bouches-du-Rhône, France, 3 January 2011 (Michel Carré)



variable specimens of hybrids are known, from individuals almost indistinguishable from European Blue to almost pure Azure (Dementiev & Gladkov 1954). Hybrids are rare outside the sympatric breeding range of both species. They are characterized by: **1** a darker cap than Azure, varying from lavender-grey to blue or even black; **2** pale greyish upperparts, paler and greyer than in Azure; **3** much less white in the tail than Azure, with only the outer web of t6 white and t5 very finely fringed white (thus more white than in European Blue); **4** reduced white in the tertials and greater coverts (wing-bar c 3-5 mm wide, compared with 2-3.5 mm in European Blue and 12-13 mm in Azure); and **5** a variation of patterns on the underparts, ranging from traces of a dark collar through a dark bib to a yellowish wash, compared with all-white underparts in Azure (Harrap & Quinn 1996). Identification problems (still) exist to separate hybrids from genuine Azure Tits, even in the hand (cf Brensing & Barthel 1993, Boon 1994, Kinnear 2001, Lascéve et al 2001).

One hypothesis suggests that irruptions of Azure Tit into Europe have resulted in widespread occurrences of hybrids, especially across central European Russia (Portenko et al 1982, del Hoyo et al 2007). Alternatively, hybrids may also have originated from the existing hybrid zones. Since no Azures have been found breeding in Europe after an irruption, it may be that the occurrences of hybrids have been part of the irruptions. A summary of occurrences of hybrids in Europe up to 1994 was presented by Boon (1994), who listed seven records (excluding the Belgian record from 1878). In this paper, an overview is given of records of both Azure Tit and Pleske's Tit in Europe west of the breeding ranges of Azure Tit up to and including 2011, based on published data and information provided by national rarities committees (see acknowledgements).

Distribution and status of Azure Tit and European Blue Tit in Europe

European Blue Tit is a widespread breeding bird across most of Europe. Its breeding range covers almost the entire Western Palearctic between 35° and 65°N. This species is sedentary or partially migratory, although over much of the centre and north of its range it makes irregular eruptive movements, mainly to the west and south (Perrins 1998).

Azure Tit (nominate *cyanus*) nests regularly in only three European countries: Belarus (400-800 pairs), European Russia (2500-10 000 pairs), and Ukraine (0-30 pairs), and exceptionally in Finland (Snow & Perrins 1998, BirdLife International

2004). In central European Russia, Azure is a very common species but generally uncommon west of the Volga river (Riihimäki 2004, del Hoyo et al 2007); for instance, it is very rare in the Moscow region (Varlygina et al 2008). The northernmost breeding population was found in the Kargopol region (Riihimäki 2004). In Belarus, the first nest was found in 1904 and four breeding records followed in 1952-89 (Perrins 1998). Currently, several 100s of pairs are nesting (cf plate 300), with the largest population in the Polesie area along the Pripyat river (Nikiforov et al 1997, Kozulin et al 2005). In the future, breeding in eastern Poland may be expected, because in recent years many new breeding sites were found along the Bug river (near Brest), close to the Polish-Belarus border (Pashkov 2006). In Ukraine, Azure bred for the first time at two sites in the northern part of the Volynian region in 2001 (Shydlovsky et al 2002). Currently, the breeding population is estimated at 10-15 pairs, occurring in the Volynian and Rivnenski regions, mainly in the upper valley of the Pripyat (Akimov 2009; Ihor Shydlovsky in litt.). In Finland, there has been one confirmed brood in 1973 (Perrins 1998). Since there are many winter and spring observations (cf plate 299), it is possible that the species is breeding irregularly in rural areas where birding activity is low; for instance, two wintering birds were observed in suitable breeding habitat until April 2006 (Valkama et al 2011; Aleksi Lehikoinen in litt.). The eastern European range of Azure forms the westernmost limit of a wide geographical distribution through the Eastern Palearctic, to eastern Siberia, Russia, and the Far East, from the central Urals to the Tian Shan, Pamir and Altai mountain ranges and to the Amur river and Ussuriand, Russia (Gosler & Serebryakov 1997, del Hoyo et al 2007). The population trend of Azure Tit appears to be stable and, therefore, the species has the status of 'Least Concern' in Europe (BirdLife International 2011).

Vagrancy of Azure Tit in Europe

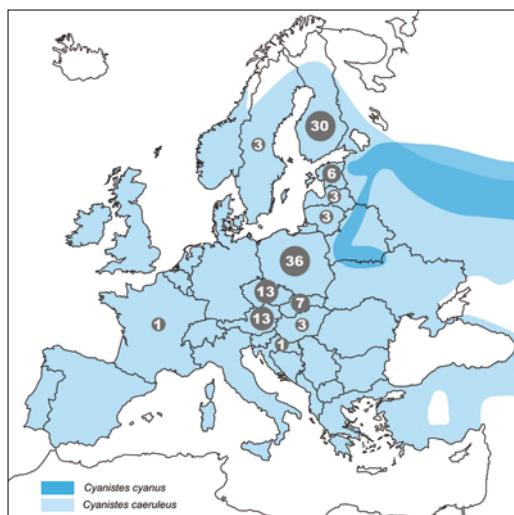
Azure Tit is a frequent vagrant in central and northern Europe. Up to 2010, there were c 119 records, mostly in Finland and Poland (55%). The westernmost records have been in Croatia and France more than a century ago (table 1, figure 1). A record in Bulgaria (Nankinov 2008) was considered uncertain by the Bulgarian rarities committee and, therefore, not accepted (BUNARCO 2009; Bojidar Ivanov in litt.). Older records from Germany are also uncertain (Glutz von Blotzheim & Bauer 1993, Bauer et al 2012), and the only confirmed record (19 November 2006) is treated as an es-

Azure Tits and hybrids Azure x European Blue Tit in Europe

TABLE 1 Records of Azure Tit *Cyanistes cyanus* in Europe until 2010 (outside regular breeding areas in Belarus, Russia and Ukraine)

Country	Number of records	Details	Reference
Poland	c 36	first before 1798; 14–15 from 19th century; eight after 1990, with last on 12 November 2004	Tomiłojć & Stawarczyk 2003, Komisja Faunistyczna 2005
Finland	30	first in 1973; 1970s: 13 (26 individuals); 1980s: four (six individuals); 1990s: four; 2005–10: nine (13 individuals)	Lehikoinen et al 2010; Aleksi Lehikoinen in litt
Austria	13	six from 19th century; seven from 20th century, with last on 16–17 April 1997	Andreas Ranner & Leander Khil in litt
Czech Republic	13	six old records, with last on 30 October 1999	http://fkcs.cz/parsya.htm ; Jiří Horáček in litt
Slovakia	7	six from end of 19th century and beginning of 20th century; one in November 2004	Richárd Kvetko & Dušan Karaska in litt
Estonia	6	25 November 1951; 19 April 1986; 14 October 1986; 20 October 1986; 31 October 1987; 25 June 1989	Uku Paal in litt
Hungary	3	26 December 1988; 28 October 1989; 6 November 2008	Zsombor Berényi in litt
Latvia	3	January 1901; 1902; winter 1915/16	Agris Celmins in litt
Lithuania	3	27 February 1964; 2 May 1997; 27 November 2010	Vytautas Jusys & Saulius Karalius in litt
Sweden	3	1786; 12 February to 6 April 1996; 22 October to 25 December 2002	Mats Wærn in litt
Croatia	1	winter 1898/99	Jelena Kralj in litt
France	1	winter 1907/08	Sébastien Reeber in litt

FIGURE 1 Distribution of records of Azure Tit *Cyanistes cyanus* in Europe with breeding areas of Azure and European Blue Tit *C. caeruleus*. Breeding distribution based on Riihimäki (2004), Pashkov (2006), del Hoyo et al (2007), Akimov (2009) and Illera et al (2011).



cape (category E; Deutsche Selenheitenkommission 2009; Jochen Dierschke in litt). Other European records listed by Mitchell & Young (1999) and Riihimäki (2004), eg, from Denmark, Estonia and Romania, have been considered too poorly documented by the relevant national rarities committees (Uku Paal in litt, Alex Sand Frich in litt, Daroczi Szilard in litt).

Approximately half of the records were in the 19th century and the first half of the 20th century. In recent decades, there has been a strong decline in the number of observations in central Europe. In the last 20 years, there were only 29 records, mainly in Finland and Poland. Azure Tit has appeared in central and northern Europe mainly in winter, from October to April, with the following monthly distribution: January (18), February (15), March (10), April (12), May (1), June (1), October (15), November (17) and December (15).

Apart from the presumed escape in Germany, no other Azure Tits originating from captivity are known for Europe. The species is rare (although not unknown) in captivity, at least in the Netherlands (cf van Kreveld 2007). Note that in August-



303-304 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus* x *caeruleus* (right), with European Blue Tit / Pimpelmees *C. caeruleus*, Vransko Jezero, Dalmacija, Croatia, 7 January 2006 (Ivica Lolić)



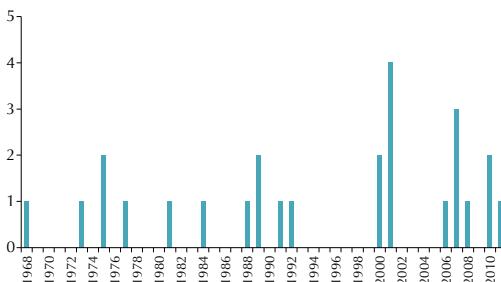


FIGURE 2 Number of records of hybrid Azure x European Blue Tit *Cyanistes cyanus x caeruleus* in Europe per year in 1968–2011 (n=26; for long-staying individuals, the day of arrival is used).

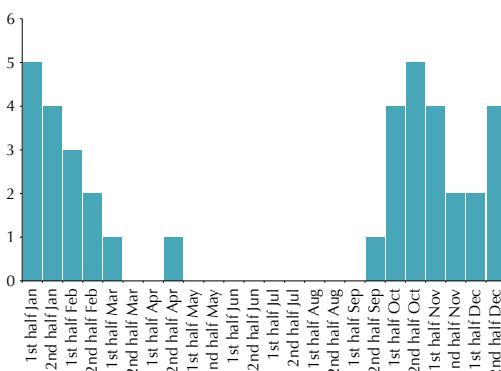


FIGURE 4 Half-monthly distribution of hybrids Azure x European Blue Tit *Cyanistes cyanus x caeruleus* in Europe (excluding breeding record in Finland). For long-staying individuals, the day of arrival is used.

September 2011, a Yellow-breasted Tit was photographed visiting garden feeders in Naphill, Buckinghamshire, England. This taxon is a resident in southern Central Asia (cf del Hoyo et al 2007) and the English bird was traced as an escape from captivity (Adam Rowlands & Nigel Hudson in litt; www.bucksbirdclub.co.uk/Pictures/Azure_Tit.htm).

Occurrence of 'Pleske's Tit' in Europe

Up to 2011, 27 records of 'Pleske's Tit' are known for Europe (table 2). The first was collected in December 1878 in Belgium (Potvliege 1996). By the end of the 1970s, there had been only six records, including a successful mixed breeding pair of Azure Tit with European Blue Tit in Finland producing hybrid young (Boon 1994). An increase occurred in 2000–11, when 13 hybrids were found

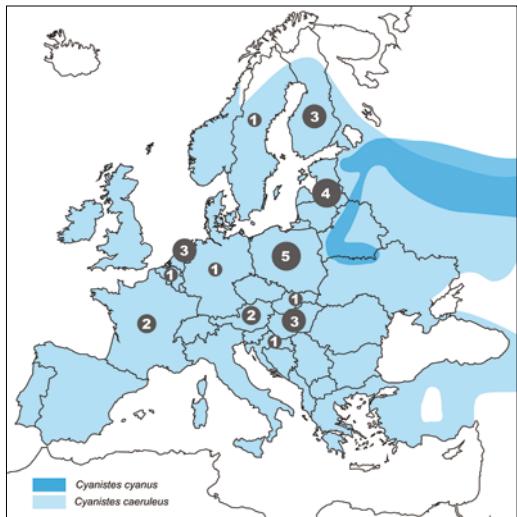


FIGURE 3 Occurrence of hybrids Azure x European Blue Tit *Cyanistes cyanus x caeruleus* in Europe, with breeding areas of both species. Breeding distribution based on Riihimäki (2004), Pashkov (2006), del Hoyo et al (2007), Akimov (2009) and Illera et al (2011).

(almost 50% of all records). Before, one or two were recorded per year, with an exceptional four in 2001 (including three in Poland), although there were also some blank years (cf figure 2). The records of hybrids come from 12 European countries, mostly from Latvia and Poland (figure 3), which are closest to the breeding areas of Azure Tit in eastern Europe. However, there have been no observations of hybrids in Belarus and Ukraine, probably because in the core breeding areas birds have no problems to find mates of the same species (Gleb Gavris in litt, Igor Gorban in litt, Ihor Shydlovsky in litt, Alexandre Vintchevski in litt). The westernmost records have been in southern France (Lascéve et al 2001). Hybrids have been trapped four times at bird ringing station Pape on the Latvian west coast (Agris Celmins in litt). 96% of the records were in autumn-winter (figure 4), with extreme dates 3 October and 11 March. There is only one spring record: on 18 April 1992, a hybrid was trapped in Finland and the same bird was relocated in southern Finland on 24–25 September 1992 (see table 2). Nine hybrids have been staying at one site for more than one day (excluding the mixed breeding record in Finland), including two individuals observed for c two months in Finland and Germany (Lindholm et al 2007, Deutsche Seltenheitenkommission 2008). All records concern single individuals and 74%

TABLE 2 Records of hybrid Azure x European Blue Tit ('Pleske's Tit') *Cyanistes cyanus* x *caeruleus* in Europe. All records concern single individuals.

Austria (2) (Leander Khil in litt)	11 October 1977, Pape, trapped and collected, specimen in collection of Museum of Zoology of University of Latvia
11 November 1989, Illmitz, Burgenland, trapped, photographed (Brensing & Barthel 1993)	
6 December 2000, Illmitz, Burgenland (Ranner 2003)	
Belgium (1) (Marnix Vandegeehuchte in litt)	24 October 1981, Pape, trapped and collected, specimen in collection of Museum of Zoology of University of Latvia
December 1878, Liège, female, trapped; died next day; specimen in collections of Institut Royal des Sciences Naturelles de Belgique, Brussel (Potvliege 1996)	
Croatia (1) (Jelena Kralj in litt)	3 October 1984, Pape, first-year female, trapped and collected, specimen in collection of Museum of Zoology of University of Latvia
7 January 2006, Vransko Jezero, Dalmacija, ringed, photographed (plate 303-305)	
Finland (3) (Aleksi Lehikoinen in litt)	Netherlands (3) (Arnoud van den Berg in litt)
1975/76, Azure Tit bred with European Blue Tit successfully in Turku Friskala in summer 1975; unknown number of young heard in nest and at least two hybrids seen in the area in winter 1975/76 (Boon 1994; Aleksi Lehikoinen in litt)	9 November 1968, Bremerbergdijk, Dronten, Flevoland, immature, trapped (died 15 April 1969), photographed (Frank & Voous 1968, van den Berg & Bosman 2001); specimen now in collection of Naturalis Biodiversity Center at Leiden, Zuid-Holland
18 April 1992, Värttilä Uusi-Värttilä, second calendar-year, trapped; and 24-25 September 1992, Kirkkonummi Rönnskär, trapped (same bird); this hybrid had previously been ringed in Sweden (see below); Lindholm et al 2007)	15 November 2007, Noordhollands Duinreservaat, Castricum, Noord-Holland, first-year, ringed, photographed (Visser et al 2007, Ovaa et al 2008) (plate 306)
12 January to 11 March 2007, Kuusamo Sossonniemi, second calendar-year, ringed, photographed (Lindholm et al 2007) (plate 307-308, 312)	18 November 2007, IJmuiden, Velsen, Noord-Holland (Ovaa et al 2008) A blue-and-white tit photographed at Wageningen, Gelderland, on 2 January 2012 (http://tinyurl.com/7ktcbxf) showed (some) characters of 'Pleske's Tit' but has not (yet) been considered by the Dutch rarities committee (CDNA).
France (2) (Sébastien Reeber & Frédéric Jiguet in litt)	Poland (5) (Tadeusz Stawarczyk in litt)
18 December 2000 to 10 January 2001, Hyères, Var, ringed, photographed (Lascéve et al 2001)	29 October 1973, Mierzeja Wiślana, Pomorskie, first-year, trapped and ringed (Hołyński & Petryna 1974)
11 December 2010 to 12 January 2011, Grans, Bouches-du-Rhône, photographed (plate 301-302, 309)	20 January and 2 February 2001, Pleszów, Małopolskie, adult, trapped and ringed, photographed (Komisja Faunistyczna 2002)
Germany (1) (Peter Barthel in litt)	20 January 2001, Żerniki, Świętokrzyskie (Komisja Faunistyczna 2002)
24 December 2001 to late February 2002, Kummingsbruck, Amberg-Sulzbach, Bayern, photographed (Limicola 16: 110, 2002; Deutsche Seltenheitenkommission 2008)	30 November 2001, Wola Kopcowa, Świętokrzyskie (Komisja Faunistyczna 2002)
Hungary (3) (Zsombor Berényi in litt)	22 October 2011, Kopań, Zachodniopomorskie, first-year, trapped and ringed, photographed (Komisja Faunistyczna 2012) (plate 313)
26 December 1988, Gyula, ringed, photographed (Boon 1994)	
28 October 1989, Ócsa, ringed, photographed (Boon 1994)	
6 November 2008, Szeged, ringed, photographed	
Latvia (4) (Agris Celmins in litt)	Slovakia (1) (Richárd Kvetko in litt)
5 October 1975, Pape, trapped	5 October 2010, Drienovec, Košice, trapped and ringed, photographed and videoed (plate 310-311)

(n=20) have been trapped. A hybrid ringed in Sweden in 1991 was retrapped six months later in Finland (see table 2). It may be speculated that hybrids are likely to have a higher tendency to migrate than pure Azure, since European Blue Tits

are often partial migrants in the area where the species' distributions are overlapping.

Conclusions

Despite the expansion of the breeding range of

Azure Tits and hybrids Azure x European Blue Tit in Europe



305 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus*, Vransko Jezero, Dalmacija, Croatia, 7 January 2006 (Ivica Lolić)

306 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus* (right), with European Blue Tit / Pimpelmees, Castricum, Noord-Holland, Netherlands, 15 November 2007 (Arnold Wijker)





307-308 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus*, Kuusamo Sossonniemi, Finland, 3 March 2007 (Jyrki Mäkelä). This individual could be a second-generation hybrid since it was so similar to Azure Tit.





309 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus* x *caeruleus*, Grans, Bouches-du-Rhône, France, 24 December 2010
(*Michel Carré*)



310 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus* x *caeruleus*, Drienovec, Košice, Slovakia, 5 October 2010 (*Milan Olekšák*)

Azur Tit to west of the traditional breeding grounds during the last 20 years, the number of records of this species in central and northern Europe significantly decreased (cf table 1). However, it could be expected that the increase in the number and activity of observers would have resulted in a larger number of Azur Tit records, particularly in countries bordering the breeding areas (eg, Poland). The reverse applies to records of 'Pleske's Tit', which are now reported in central and western Europe more frequently than in the past. The ratio of records of pure Azur to Pleske's has changed very significantly from 9:1 before 1990 (90 records of Azur Tit versus 11 of hybrids) to 2:1 in the years 1990-2010 (29 Azur versus 15 hybrids). What could have caused this? Perhaps in the past, Pleske's has been misidentified as Azur Tit, while nowadays a better knowledge of identification characters of hybrids and the increase in photographic documentation of records and awareness of observers contributed to the change of these proportions.

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Karaska, Oskars Keiss, Leander Khil, Peter Knaus, Dražen Kotrošan, Jelena Kralj, Richárd Kvetko, Aleksi Lehikoinen, Patric Lorgé, Paweł Malczyk, Joaquim Muchaxo, Timme Nyegaard, Daniele Occhiato, Tor A Olsen, Uku Paal, Gunnlaugur Pétursson, Nikos Probonas, Sébastien Reeber, Adam Rowlands, Darko Saveljić, Dietrich Sellin, Ihor Shydlovsky, Tadeusz Stawarczyk, Daroczi Szilard, Maciej Szymański, Tomi Trilar, Marko Tucakov, Marnix Vandegehuchte, Alexandre Vintchevski, Mats Wærn and Dariusz Wysocki. I also want to thank Krzysztof Blachowiak, Michel Carré, Tom Lindroos, Ivica Lolić, Jyrki Mäkelä, Milan Olekšák, Michał Polakowski and Arnold Wijker who provided excellent photographs for publication. Przemek Wylegała was most helpful in preparing the maps. Special thanks go to Aleksi Lehikoinen and the editors of Dutch Birding for their comments on the manuscript.

Samenvatting

AZUURMEZEN EN HYBRIDEN AZUURMEES X PIMPELMEESEN EUROPA Dit artikel geeft een overzicht van het voorkomen in Europa van Azuurmees *Cyanistes cyanus* en hybride Azuurmees x Pimpelmees *C. cyanus* x *caeruleus*. Pimpelmees broedt in vrijwel geheel Europa, Azuurmees broedt slechts in drie Europese landen regelmatig, namelijk Witrusland, Rusland en Oekraïne, en incidenteel in Finland. In het Europese deel van Rusland is Azuurmees zeer algemeen (maar minder algemeen ten westen van de Wolga). In Witrusland broeden enkele 100en paren en in Oekraïne 10-15 paren.

Azuurmees is een dwerggast in Midden- en Noord-Europa, voornamelijk in de periode oktober-april. Tot en met 2010 zijn er 119 gevallen, de meeste in Finland en



311 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus* (right), with European Blue Tit / Pimpelmees, Drienevec, Košice, Slovakia, 5 October 2010 (Milan Olekšák)

Polen (55%). De meest westelijke gevallen waren in Kroatië en Zuid-Frankrijk, meer dan een eeuw geleden (figuur 1, tabel 1). Ongeveer de helft van het aantal gevallen was in de 19e eeuw en in de eerste helft van de

312 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus* (right), with European Blue Tit / Pimpelmees, Kuusamo Sossonniemi, Finland, 3 March 2007 (Jyrki Mäkelä)



20e eeuw. In de laatste decennia is het aantal gevallen in Midden-Europa sterk afgenomen, met in de laatste 20 jaar slechts 29, voornamelijk in Finland en Polen.

Hybriden tussen Azuurmees en Pimpelmees (ook bekend als 'Pleskes Mees') zijn buiten de gezamenlijke broedgebieden van beide soorten zeldzaam. Tot en met 2011 zijn er in Europa 27 gevallen (figuur 3, tabel 2). Aan het eind van de jaren 1970 waren er nog maar zes gevallen (inclusief de jongen van een succesvol gemengd broedpaar in Finland). In 2000-11 was er een toename, met 13 nieuwe gevallen (zie ook figuur 2). Pleskes Mezen zijn in 12 landen vastgesteld, de meeste in Letland en Polen (het dichtst bij de Oost-Europese broedgebieden van Azuurmees). 96% van de gevallen was in najaar-winter, en er is één voorjaarsgeval in Finland. Alle gevallen betreffen steeds één individu, en 74% betreft een ringvangst. Een hybride die in 1991 werd geringd in Zweden werd zes maanden later teruggevangen in Finland.

De verhouding in het aantal gevallen van Azuurmees en Pleskes Mees is sterk veranderd, van 9:1 vóór 1990 (90 gevallen van Azuurmees versus 11 van Pleskes) tot 2:1 in 1990-2010 (29 gevallen van Azuurmees vs 11 van Pleskes). Mogelijk zijn in het verleden Pleskes Mezen ten onrechte als Azuurmees gedetermineerd. De toeegenomen kennis van determinatiekenmerken, fotografische documentatie en oplettendheid van vogelaars heb-

313 Hybrid Azure x European Blue Tit / hybride Azuurmees x Pimpelmees *Cyanistes cyanus x caeruleus*, Kopań, Zachodniopomorskie, Poland, 22 October 2011 (Michał Polakowski)



ben mogelijk bijgedragen aan deze veranderde verhouding.

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