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10th International Meeting of European Bird Curators

17-19 October 2017, PARIS



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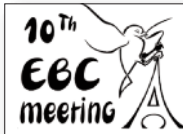


PRÉFACE

LE COMITÉ D'ORGANISATION

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Ce volume d'*Alauda* regroupe une partie des contributions scientifiques présentées dans le cadre du 10^e du Congrès international des curateurs européens de collections d'oiseaux, qui s'est tenu au Muséum national d'Histoire naturelle à Paris du 17 au 19 octobre 2017.

Les *International Meetings of European Bird Curators* sont des rendez-vous bi-annuels qui réunissent la communauté des conservateurs ou chargés de collections d'un grand nombre de musées européens mais également d'autres continents. Ces rencontres internationales permettent aux participants d'échanger sur différentes thématiques en lien avec la conservation des collections d'oiseaux, leur utilisation dans la recherche, la diffusion auprès du grand public, l'enseignement.

C'est la première fois que cette manifestation scientifique se tenait en France. Elle a réuni 69 participants venant de 19 pays : Allemagne (4), Autriche (2), Brésil (2), Canada (1), Danemark (2), Espagne (2), États-Unis (4), France (24), Hongrie (1), Israël (1), Italie (3), Norvège (1), République tchèque (1), Royaume-Uni (10), Russie (2), Serbie (1), Suède (3), Suisse (4), Turquie (1). Le programme scientifique comportait 31 communications orales et 12 posters, qui ont abordé les thèmes suivants : les collections d'importance historique dans les musées d'histoire naturelle, les techniques de préparation et de conservation des collections, les collections ostéologiques et leur utilisation, les « nouvelles » collections et leur utilisation, les bases de données et leur utilisation. Les organisateurs du Congrès souhaitent remercier pour leur soutien financier et logistique le Muséum national d'Histoire naturelle, et en particulier les UMR 7205 (Institut de systématique, évolution, biodiversité) et 7209 (Archéozoologie, archéobotanique : sociétés, pratiques et environnements), la Direction de la Recherche, de l'Expertise, de la Valorisation et de l'Enseignement, le LaBex BCDiv et l'Atelier d'iconographie scientifique de l'UMS 2700 (Outils et méthodes de la systématique intégrative). Ils remercient également pour leur contribution financière la Société des Amis du Muséum, l'Observatoire des Patrimoines de Sorbonne Université (OPUS), les entreprises ABIOTEC et Hygiène Office, spécialistes du contrôle des insectes dans les collections, ainsi que Alpha Visa Congrès pour son appui à l'organisation. ●

THE ITALIAN SPECIMENS OF **WHITE-BACKED WOODPECKER** *Dendrocopos leucotos* IN ITALIAN MUSEUMS

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In memory of Edgardo MOLTONI and Elio Augusto DI CARLO, ornithologists that so much contributed to the discovery of the Italian population of the White-backed Woodpecker.

Abstract. A review of all known museum specimens of *Dendrocopos leucotos* from Italy is here presented, in order to shed light on its past distribution, which was possibly different from the current one. We located 34 specimens of both subspecies (6 *D. l. leucotos* and 28 *D. l. lilfordi*), and commented on their present state of preservation, historical value and biogeographical information. We conclude that this sample (although limited in size) suggests a former Italian breeding range of *D. l. lilfordi* extended well north than today. On the other hand, the specimens of *D. l. leucotos*, despite some doubts about the origin of a few, seem to point towards a greater vagrancy rate at the turn of the 20th century. In both cases, over-exploitation of beech forests may have been a determining factor for their presence in Italy.

Mots-clés: *Dendrocopos leucotos*, Musées italiens, Distribution actuelle et passée.

Keywords: *Dendrocopos leucotos*, Italian museums, Current and past distribution.

Résumé. Les spécimens italiens de *Pic à dos blanc* dans les musées italiens. Nous présentons une révision de tous les spécimens de *Dendrocopos leucotos* connus dans les musées italiens pour mettre en évidence la distribution ce taxon par le passé, qui fut potentiellement différente de l'actuelle. Trente-quatre spécimens appartenant aux deux sous-espèces (6 *D. l. leucotos* et 28 *D. l. lilfordi*) ont pu être localisés. Nous discutons leur statut de conservation actuel, leur valeur historique, et leurs informations biogéographiques. Nous concluons que, globalement, ces spécimens suggèrent que l'aire de reproduction historique de *D. l. lilfordi* en Italie s'étendait plus au nord que l'actuelle. Au contraire, les spécimens de *D. l. leucotos*, en dépit de doutes sur l'origine de certains spécimens, semblent indiquer un plus grand erratisme au cours des dernières années du XIX^e siècle et des premières années du XX^e siècle. Dans les deux cas, la surexploitation des forêts de hêtres a pu être un facteur déterminant sur les changements d'aire de répartition.

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⁽⁷⁾ Museo Ornitologico "Ferrante Foschi", Forlì.

⁽⁸⁾ Museo Civico di Zoologia, Roma.

INTRODUCTION

The White-backed Woodpecker *Dendrocopos leucotos* (BECHSTEIN, 1802) is a polytypic species distributed in Eurasia, with two subspecies recognized in Western Europe, *D. l. leucotos*, ranging from Norway east to Kamchakta and NE China and south to Austria and the Carpathians, and

D. l. lilfordi (SHARPE & DRESSER, 1871) with scattered populations mainly in old beech or mixed forests in the mountains of southern Europe (DEL HOYO *et al.*, 2002).

The Italian breeding population of the subspecies *lilfordi* was discovered as recently as 1959 (MOLTONI, 1959a, 1959b) in the Parco Nazionale d'Abruzzo (now Parco Nazionale d'Abruzzo,



FIG. 1.— The table from MANETTI *et al.* (1769) with the depiction of *Picus varius maximus*, which can be considered the first known representation of the White-backed Woodpecker before its formal description by BECHSTEIN in 1802.

La planche de MANETTI et al. (1769) avec l'illustration de Picus varius maximus, qui peut être considérée comme la première représentation du Pic à dos blanc avant sa description formelle par BECHSTEIN en 1802.

Lazio and Molise, hereafter PNALM). A reasonable fraction of the current range is included in national and regional parks, where the population is fairly well monitored: relatively high densities are found especially in the beech forests of the PNALM (BERNONI, 1992, 1995) and the species known breeding distribution includes many forests of the central Apennines ridge, from the mountains of the PNALM north to Mount Terminillo and the Gran Sasso Massif, covering an elevational distribution between 1000–1800 m (BERNONI *et al.*, 2009; BRICHETTI & FRACASSO, 2007, 2015).

The species is considered as “Vulnerable” in the Italian Red List (PERONACE *et al.*, 2012) and is endangered or decreasing in some other European countries (HAGEMEIJER & BLAIR, 1997). The species is fully protected by European and Italian laws.

Interestingly, this rare woodpecker is known in the Italian ornithological literature since the mid-18th century, *i.e.* well before its formal description. In fact, an illustration of the so-called “*Picus varius maximus*” (FIG. 1) was published by MANETTI *et al.* (1769), but unfortunately it was accompanied only by a short text lacking details about its possible presence in the Apennines or in any other Italian region. A non-national origin of the represented specimen cannot be totally ruled out, as many exotic species are also illustrated in the same book.

MATERIAL AND METHODS

This is the first attempt to track all the specimens of Italian origin kept in museums and in other bird collections and to check their present location, original data and conservation conditions. For this purpose, we inspected the bird collections of the most important Italian museums, checked the Italian ornithological literature with special attention to the published catalogues of Italian bird collections (TAB. I), and carried out informal interview with ornithologists and bird collection curators. We firstly presented the project in 2015 at the Italian Ornithological Congress in Turin, aiming to draw the attention of ornithologists and bird watchers on this scientific issue (BOANO *et al.*, 2017). To localize Italian specimens in museums outside Italy we used the Vertnet portal (<http://portal.vertnet.org/>) and J.-L. GRANGÉ helped us by sharing the information he collected through his wide range enquiry about *Dendrocopos leucotos*, with results obtained from 60 European, Russian, Japanese and U.S. museums.

RESULTS

We succeeded in locating 34 specimens (6 *D. l. leucotos* and 28 *D. l. lilfordi*) collected in Italy and preserved, at least for some time, in private or public bird collections. Three specimens traditionally considered in the literature as Italian came from localities presently in the Slovenian territory, close to the NE borders of Italy (TAB. II). For the sake of completeness, we also recall two more specimens from Corsica (France) kept at the Muséum

d'Histoire Naturelle de Bern, as documented by GRANGÉ (2013, 2015). The same Author also pointed out that two other specimens, kept at the Muséum d'Histoire Naturelle de Bruxelles and considered to be of Corsican origin (FRAIPONT, 1910; VOOUS 1947), are in fact *D. l. leucotos* from Sweden. Unfortunately, we also found that as many as seven *D. l. lilfordi* specimens apparently disappeared from their known repositories. In particular, we lost the traces of:

- the three specimens from the Parco Nazionale d'Abruzzo, studied by MOLTONI (1959a, 1959b) and confirmed as being still present there in 1987 (B. MASSA *in litt.*; M.B.)

- the female from Ventimiglia of the Arrigoni degli Oddi collection now held in Rome Zoological Museum, which was replaced by a male *Dendrocopos major*, despite that the original was clearly reported as a female in the accessions register (FIG. 2) and in the recent FOSCHI *et. al.*, (1996) catalogue

- the specimen described by CHIGI (1903), also in Rome Zoological Museum, in place of which there is now a specimen of *Dendrocopos medius*

- the two specimens of the Ferrante Foschi collection in Forlì, one of which was surely stolen in 2002 with another 323 specimens (81 were later recovered, but unfortunately the White-backed Woodpecker was not among them). The second specimen was given in exchange to a private collector (Cantoni) who was willing to use it

for a project to create an ecology museum in the city of Meldola (Forlì); the project was never accomplished and Cantoni's heirs sold the collection to G. and F. Natta ("Neorurale", Vellezzo Bellini, Pavia). The collection is currently well preserved, but it does not include any White-backed Woodpeckers.

The museums now keeping the largest samples of *D. leucotos* are therefore Milan (six specimens), Florence (five specimens) and Genoa (three specimens); the oldest specimen is that preserved in Calci museum (Pisa), which was obtained by Paolo SAVI in 1842; all of them are in good conditions of preservation and curatorial care.

Most specimens were collected in the second half of the 19th century (between 1840 and 1900) in the northern Apennines, especially in Liguria and Toscana (TAB. III), three from the eastern borders of Italy, in a territory now pertaining to Slovenia and only one collected from the Latium coast, south of the known breeding range. The other specimens were collected mainly after MOLTONI's (1959a, b) discovery of the breeding population of PNALM and came from the known breeding range in the mountains of Central Italy. The biometry of some of them is presented in Table IV and some of the described specimens are illustrated in Figure 3.

All the records outside the Central Apennines breeding range are mapped in Figure 4, including the two from Corsica (GRANGÉ, 2015).

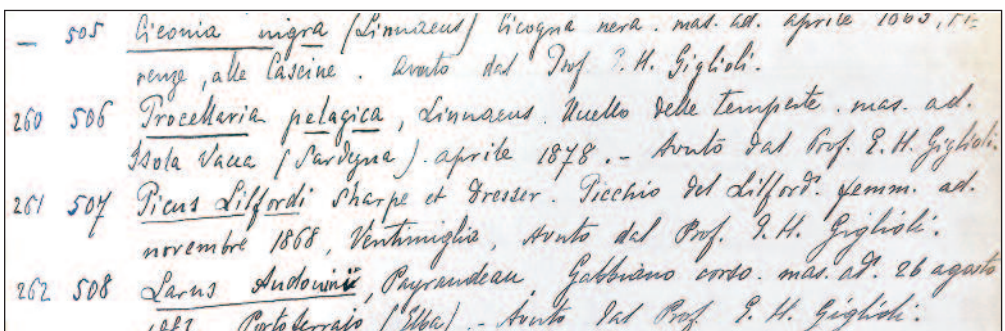


FIG. 2. – A detail of the handwritten accessions register of the Arrigoni degli Oddi collection, now preserved in the Civic Museum of Zoology of Rome, with the record of the adult female *Dendrocopos leucotos lilfordi* (Cat. N. 507), now missing. The specimen collected in November 1868 in Ventimiglia was given to ARRIGONI by prof. Enrico Hillyer GIGLIOLI (1845-1909). *Illustration du registre d'accession manuscrit de la collection Arrigoni degli Oddi collection, actuellement conservé au Civic Museum of Zoology of Rome, avec la mention de la femelle adulte Dendrocopos leucotos lilfordi (Cat. N. 507), actuellement manquante. Le spécimen collecté en novembre 1868 à Ventimiglia a été donné à ARRIGONI par le Prof. Enrico Hillyer GIGLIOLI (1845-1909).*



A) *D. I. lilfordi* male MUP 2497.
Lilfordi mâle.



B) *D. I. lilfordi* male MSNG
25420. *D. I. lilfordi* mâle.



C) *D. I. lilfordi* female MZUF 701.
D. I. lilfordi femelle.



D) Front, & **E)** rear view of *leucotos* female MCZR 7384.
Vues de **D)** face, et **E)** de dos de *leucotos* femelle.



F) *D. I. leucotos* female MZUF
3242. *D. I. leucotos* femelle.



G) *D. I. lilfordi* female PNAML 88/AV (ex 113) & **H)** *D. I. lilfordi* juv. PNAML 90/AV (ex 111).



I) *D. I. lilfordi* female MSNM Av12767 and original letter of E.A.Di Carlo to E. MOLTONI.



G) *D. I. lilfordi* femelle, **H)** *D. I. lilfordi* Juv et **I)** *D. I. lilfordi* femelle.

DISCUSSION

The Italian specimens of the nominotypical subspecies collected in the NE Italian Alps, probably come from the nearby breeding range in Austria, but those collected in the Apennines (two in Liguria and one in Tuscany) and the one collected in a lowland area near Pavia in 1972 (REPETTO, 1973), are of more difficult interpretation. Some of them, for example the specimen from Montagnola Senese (BROGI, 1884; CARAZZI, 1912), were considered with doubt in the past (ARRIGONI DEGLI ODDI, 1929), but others were accepted as vagrants from north or east European populations. Genetic analyses, where feasible, might help to better understand their origin.

All the *D. l. lilfordi* from the northern Apennines (Liguria, Tuscany), today kept in the museums of Genoa, Florence and Pisa, could be probably best considered as evidences of a population that once occupied the northern Apennines beech woods, and that went extinct possibly following intensive logging during the last decades of the 19th century and the first half of the 20th, as previously hypothesized by DI CARLO (1972).

Another hypothesis involves the occurrence of a more intense and at least partly forced vagrancy of this species during periods of massive timber exploitation of the European woods.

In any case, the northern Apennines documentation seems at odds with the situation to the south of the current breeding range, where no accepted records occurs (LA MANTIA *et al.*, 2015; FULCO *et al.*, 2008). A remarkable exception is that of the well preserved beech forest of the Gargano headland (Apulia), where a few observations were made, also in the breeding period, in the 1960s and 1980s (DI CARLO, 1963; BRICHETTI & FRACASSO, 2007), but where more recent searches for this species led to no results (BERNONI, 1999; LIUZZI *et al.*, 2013).

FIG. 3.— Some specimens of *Dendrocopos leucotos* still kept or previously kept (now missing) in Italian collections and ordered by date of collection (for details, see Table II). *Quelques spécimens de Dendrocopos leucotos conservés ou anciennement conservés (actuellement disparus) dans les collections italiennes et classées par la date de collecte (voir Tableau II pour les détails).*



FIG. 4.— Map of the Italian and Corsican records of *Dendrocopos leucotos*. Black dots show the records of the subspecies *lilfordi*; white dots show the records of *leucotos*; the empty dot show the location of the Gargano headland beech forest, where some observations of *D. l. lilfordi* were obtained in the past. The Italian present breeding range boundaries of *D. l. lilfordi* are shown in red. The inset (upper right) show the species' range in the Western Palearctic.

*Carte spécifiant les mentions italiennes et corses de Dendrocopos leucotos. Les ronds noirs indiquent les mentions de la sous-espèce lilfordi; les ronds blancs indiquent les mentions de la sous-espèce leucotos; les ronds vides indiquent la localisation de la forêt de hêtres de Gargano où des observations de *D. l. lilfordi* ont été mentionnées dans le passé. La distribution actuelle de *D. l. lilfordi* en Italie est indiquée en rouge. L'insert (en haut à droite) montre la distribution de l'espèce dans le Paléarctique occidental.*

Similar to the latter situation is the puzzling information about the presence of White-backed Woodpecker in Corsica. Even if the historical documentation about the species in this Mediterranean island is poor and recent observations are dubious, at least two preserved specimens are known, as discussed in depth by GRANGÉ (2015). Nevertheless, as occurred with the Gargano population, there are no definitive confirmations coming from recent fieldwork, and the species is officially considered either locally extinct or not breeding (THIBAUT & BONACCORSI, 1999).

Finally, considering the rarity of the species at the national level, its scientific interest, and the poor representation in the scientific collections, we stress the importance to preserve the existing specimens with great care. Moreover, we plead field researchers as well as park rangers to salvage any dead specimens of White-backed Woodpecker for their multi-purposes use (as skins/skeleton/tissue samples) in research (WEBSTER, 2017). ●

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TABLE I.– List of the ornithological collections and published collection catalogues checked for the presence of Italian *Dendrocopos leucotos* specimens. An asterisk (*) indicates collections directly checked by the authors.

Ornithological Collection	Region	Reference
"Joseph Whitaker" (National Museum of Scotland)		LO VALVO F. & MASSA B., 2000
Museo Naturalistico, Centro Visita del Parco d'Abruzzo, Pescasseroli (Aquila)	Abruzzo	TOLLIS P. <i>in litt.</i>
Università degli Studi della Calabria, Arcavacata di Rende (Cosenza)	Calabria	MINGOZZI T. <i>in litt.</i>
Museo Naturalistico degli Alburni, Corleto Monforte (Salerno)	Campania	PIGNATARO M. <i>in litt.</i>
NatuRa, Museo di Scienze Naturali "Alfredo Brandolini", Ravenna	Emilia Romagna	ORTALI A., 1974
Liceo Classico Statale "G. D. Romagnosi", Parma	Emilia Romagna	ROSCELLI F. & CALCAGNO M., 2017
ISPRA, Ozzano dell'Emilia (Bologna)	Emilia Romagna	*
Museo Civico di Storia Naturale di Ferrara, Ferrara	Emilia-Romagna	MAZZOTTI S. <i>in litt.</i>
Museo Ornitologico "Ferrante Foschi", Forlì	Emilia-Romagna	FOSCHI U. F., 1984
Università degli Studi di Modena e Reggio Emilia, Modena	Emilia-Romagna	DAL ZOTTO M. <i>in litt.</i>
Museo Friulano di Storia Naturale, Udine	Friuli-Venezia Giulia	PARODI R., 1987
Museo Civico di Zoologia, Roma	Lazio	*
"Arrigoni degli Oddi", Museo Civico di Zoologia, Roma	Lazio	FOSCHI U.F. <i>et al.</i> , 1996
Museo Civico di Storia Naturale G. Doria, Genova	Liguria	*
Collezione Noceto di Zinola, Savona	Liguria	TRUFFI G <i>et al.</i> , 1994
Museo Civico di Storia Naturale, Morbegno (Sondrio)	Lombardia	BONVICINI P., 1992
Museo di Storia Naturale di Milano	Lombardia	*
Museo Civico di Scienze Naturali, Brescia	Lombardia	BRICHETTI P. <i>in litt.</i>
Università degli Studi di Pavia	Lombardia	BOGLIANI G. <i>in litt.</i>
Collezione Ornitologica "Tommaso Salvadori", Fermo (Pesaro-Urbino)	Marche	VIOLANI C. <i>et al.</i> 1997
Collezione "Rolando Admetos", Valenza Po (Alessandria)	Piemonte	*
Museo di Storia Naturale di Villa Brea, Chieri (Torino)	Piemonte	AIMASSI G. & LEVI L., 1991
Museo Civico di Storia Naturale, Carmagnola (Torino)	Piemonte	*
Museo Civico "Colonnello Martina", Monforte d'Alba (Cuneo)	Piemonte	*
Museo Civico Archeologico e di Scienze Naturali "Federico Eusebio", Alba (Cuneo)	Piemonte	BOANO G. & CAVALLO O., 1983
Museo Civico Craveri di Storia Naturale, Bra (Cuneo)	Piemonte	*
Collezione Ornitologica "Noro", Graglia (Biella)	Piemonte	*
Liceo Ginnasio pareggiato di Torre Pellice (Torino)	Piemonte	DE BEAUX O., 1951
"Marchese Pinelli Gentile", Tagliolo Monferrato (Alessandria)	Piemonte	SPANÒ S., 1976
Museo Civico di Storia Naturale di Stazzano (Alessandria)	Piemonte	SILVANO F. <i>in litt.</i>
Museo Regionale di Scienze Naturali, Torino	Piemonte	*
Collezione Ferrero, Parco Naturale delle Lame del Sesia, Albano Vercellese (Vercelli)	Piemonte	*
Museo di Zoologia dell'Università degli Studi di Torino	Piemonte	ELTER O., 1986
Sezione Provinciale Cacciatori, Alessandria	Piemonte	SILVANO F., 1974
Collezione Tassidermica Provinciale, Verbania-Cusio-Ossola	Piemonte	LUX E., 2009

TABLEAU I.– Liste des collections ornithologiques et catalogues de collections publiés vérifiés pour la présence de *Dendrocopos leucotos* d'origines italiennes. Un astérisque (*) indique les collections directement vérifiées par les auteurs.

Ornithological Collection	Region	Reference
De Romita" Istituto Scolastico "Pitagora", Bari	Puglia	LIUZZI C. <i>et al.</i> , 2013
Museo di Storia Naturale del Salento, Calimera (Lecce)	Puglia	PANZERA S. <i>in litt.</i>
Università degli Studi di Sassari	Sardegna	BAGELLA S. & PRANZETTI P., 2007
"Antonio Trischitta" Museo Regionale di Palazzo Daumale, Terrasini (Palermo)	Sicilia	DI PALMA G. <i>et al.</i> , 1989
"Carlo Orlando", Museo Regionale di Palazzo Daumale, Terrasini (Palermo)	Sicilia	LO VALVO F. <i>in litt.</i>
Istituto di Istruzione Superiore Statale "C. Gemellaro", Catania	Sicilia	CANTARERO A. & SIRACUSA M., 1993
Museo "La Specola", Università degli Studi di Firenze	Toscana	*
"C. Picchi", now at American Museum Natural History, New York	Toscana	PICCHI C., 1904
Museo di Storia Naturale dell'Accademia dei Fisiocritici, Siena	Toscana	BACCETTI N. <i>et al.</i> , 2006
"Marchesa Marianna Paulucci", San Gimignano (Siena)	Toscana	MASSI A., 1990
Collezione Ornitologica "Carlo Beni", Ecomuseo del Casentino, Pratovecchio di Stia (Arezzo)	Toscana	LAPINI <i>et al.</i> , 1994
MUSE, Trento	Trentino Alto Adige	DEFLORIAN M.C. <i>in litt.</i>
Museo Civico di Storia Naturale, Rovereto (Trento)	Trentino Alto Adige	STANCHER G. <i>in litt.</i>
Museo Civico di Storia Naturale, Jesolo (Venezia)	Veneto	BASSO R. <i>in litt.</i>
Museo di Storia Storia Naturale di Venezia	Veneto	BON M. <i>in litt.</i>
"Americo Giol", Oderzo (Treviso)	Veneto	SEMENZATO M. <i>et al.</i> , 2015

TABLEAU II.– List of specimens of *Dendrocopos leucotos* of Italian origin presently kept or known to have been kept in Italian museums and collections, ordered by year of collection from older to newer. Museum acronyms used: CFMF = Museo Forli; MCSNR = Museo Civico Storia Naturale Rovereto; MCZR = Museo Civico Zoologia Roma; MFS = Museo Fisiocritici Siena; MSNG = Museo Storia Naturale Genova; MSNM = Museo di Storia Naturale Milano; MUP = Museo Universitario Pisa; MZUF = Museo Zoologico Università Firenze; MZUT = Museo Regionale Scienze Naturali Torino; PNALM = Museo Parco Abruzzo-Lazio-Molise.

Liste des spécimens de Dendrocopos leucotos d'origine italienne, conservés ou connus pour être conservés dans les musées et collections italiennes, triés par date de collection (de la plus ancienne à la plus récente). Acronymes : CFMF = Museo Forli; MCSNR = Museo Civico Storia Naturale Rovereto; MCZR = Museo Civico Zoologia Roma; MFS = Museo Fisiocritici Siena; MSNG = Museo Storia Naturale Genova; MSNM = Museo di Storia Naturale Milano; MUP = Museo Universitario Pisa; MZUF = Museo Zoologico Università Firenze; MZUT = Museo Regionale Scienze Naturali Torino; PNALM = Museo Parco Abruzzo-Lazio-Molise.

Notes: (1) – Checked and photographed (S. FARINA, curator of Pisa Museum, 2017); (2) – Checked and photographed (GB, CM, EB, GC); (3) - Checked (G. STANCHER, curator of the Rovereto Museum, 2017); (4) - Not found in Rome Zoological Museum after accurate check of the collections (CM, GB and M. Pavia); (5) - See also LAPINI & TELLINI 1994; (6) - Specimen exchanged with a private collector and now missing, see text (UFF); (7) - Specimen stolen from the Forli museum (UFF); (8) - All three specimens (see text), with all evidence the same ones listed by MOLTONI (1959b) and DI CARLO (1972) and successively checked by other ornithologists in 1971 (B. MASSA *in litt.*) and in 1987 (MB), are now missing (P. TOLLIS *in litt.* and CM); (9) - Specimens in PNALM from the local Museum of Villavallelonga (P. TOLLIS *in litt.*, MB and CM); (10) - checked by M. PIGNATARO (curator of Corleto Monforte Museum).

subspecies	Sex age	Year	Month Season	Day	Region	Locality	Previous location	Present location/situation and catalogue number	First author	Notes
1	lifordi	♂	1842		Toscana	Castelnovo di Garfagnana, Lucca	MUP	MUP 2497	SAVADORI 1872	(1)
2	leucobas	♂	1855		Liguria	Near Genova	MZUF	MZUF 1593	GIGLIOLI 1886	(2)
3	leucobas	♂	1861		Trentino	River Sarca, Trento	MCSNR	MCSNR 0383	BONOMI 1884	(3)
4	lifordi	♂	1863	winter	Liguria	?	Coll. De Negri	MSNG 25421	SAVADORI 1872	(2)
5	leucobas	♀	1863	winter	Liguria	?	Coll. De Negri	MSNG 25240	SAVADORI 1872	(2)
6	lifordi	♀ ad	1868	11	Liguria	Ventimiglia, Imperia	Coll. Arrigoni degli Oddi	MCZR 1057 (Arrigoni 507) missing	ARRIGONI 1929	(4)
7	lifordi		1870	12	Marche	Ancona	MZUF	MZUF 1042	GIGLIOLI 1886	(2)
8	lifordi	♀	1874	1	Liguria	Livellato, Genova	MZUF	.MZUF 701	GIGLIOLI 1886	(2)
9	lifordi	♂	1874	spring	Liguria	Livellato-Ceranesi, Genova	MSNG	MSNG 32690	GIGLIOLI 1886	(2)
10	lifordi	♀	1880	1	Liguria	Rivarolo, Genova	MZUF	MZUF 1546	GIGLIOLI 1886	(2)
11	leucobas	♀	1883	11	Toscana	Rosia, Montagnola Senese, Siena	Coll. Magni-Griffi	MCZR 7384	BROGI 1884, CARAZZI 1887	(2)
12	lifordi	♂	1883		Toscana	Camaldoli, Arezzo	Coll. Beni	Ecomuseo Casentino	ARRIGONI 1929	(5)
13	lifordi	♀	1886	11	Piemonte	Pinerolo, Torino	MZUF	MZUF 11576	SAVADORI 1916	(2)
14	lifordi		1888		Toscana	Fallerona, Firenze	Coll. Beni	Ecomuseo Casentino	ARRIGONI 1929	(5)
15	lifordi	♀ ad	1890	10	Toscana	Montalcino, Siena	MZUF	MZUF 3242	GIGLIOLI 1907	(2)
16	lifordi	♂	1902	10	Lazio	Ardea, Roma	Coll. Chigi della Rovere	MCZRu 831 missing	CHIGI DELLA ROVERE 1903, ARRIGONI 1929	(4)
17	leucobas	♂	1914	12	Slovenia	Aidussina, Udine, now Adjusvina	Coll. Foschi (ex Vici)	CFMF 2801 missing	ARRIGONI 1929	(7)
18	lifordi	♂	<1929		Slovenia	Vipacco (Friuli), now Vipava (slovenia)	Bianchi	?	ARRIGONI 1929	
19	lifordi	♀	<1929		Slovenia	Vipacco (Friuli), now Vipava (slovenia)	Bianchi	?	ARRIGONI 1929	
20	lifordi	juv	1927	08	Abruzzo	Parco d'Abruzzo, Aquila	PNALM	PNAML 111 missing	MOITONI 1959b, DI CARLO 1972	(8)
21	lifordi	♂	1927	09	Abruzzo	Parco d'Abruzzo, Aquila	PNALM	PNAML 112 missing	MOITONI 1959b, DI CARLO 1972	(8)
22	lifordi	♀	1930	07	Abruzzo	Parco d'Abruzzo, Aquila	PNALM	PNAML 113 missing	MOITONI 1959b, DI CARLO 1972	(8)
23	lifordi	♀	1927-30		Abruzzo	Parco d'Abruzzo, Aquila	Museo Villavallelonga AQ	PNALM-89		(9)
24	lifordi	♂	1959	10	Abruzzo	La Difesa, P. Naz. d'Abruzzo, Aquila	MSNM	MSNM Av 26722		(2)
25	lifordi	♀	1960	10	Abruzzo	Parco d'Abruzzo, Aquila	MSNM	MSNM Av 12767		(2)
26	lifordi	♀	1961	10	Abruzzo	Forca d'Acero, Pescasseroli, Aquila	Foschi (es Favero)	Museo Foril CFMF 2587 mis.		(6)
27	lifordi	♀	1961	12	Abruzzo	Forca d'Acero, Pescasseroli, Aquila	MSNM	MSNM Av 12768		(2)
28	lifordi	♀	1963	11	Abruzzo	Parco Nazionale d'Abruzzo, Aquila	MSNM	MSNM Av 12765		(2)
29	lifordi	♀	1963	11	Abruzzo	La Difesa, P. Naz. d'Abruzzo, Aquila	MSNM	MSNM Av 12766		(2)
30	lifordi	♂	1970-79		Abruzzo	Confini Lazio-Abruzzo	Coll. Gabrielli	MCZRu 2006/321	REPETTO 1973	(2)
31	leucobas	♂	1972	3	Lombardia	Ferrera Erbognone, Pavia	Coll. Pazuconi	MSNM Av 35481		(2)
32	lifordi	♂	1981	8	Abruzzo	Forca d'Acero, Pescasseroli, Aquila	MFS	MFS Av 453	BACCETTI <i>et al.</i> , 2006	(10)
33	lifordi	♂	1970-71		Abruzzo	Castel di Sangro, Aquila	MNCM			(10)
34	lifordi	♀	1970-71		Abruzzo	Castel di Sangro, Aquila	MNCM			(10)

TABLE III.– Frequency of *D. leucotos* ssp. in Italy per region, listed from the most frequent to the less frequent. Three specimens from Friuli Venezia Giulia were collected in localities at that time belonging to Italy, but now part of Slovenia.

Fréquence des mentions de D. leucotos ssp. en Italie classées par région avec les occurrences les plus fréquentes mentionnées en premier. Trois spécimens originaire de Friuli Venezia Giulia ont été collectés dans des localités appartenant à l'Italie au moment de la collecte, mais actuellement localisées en Slovénie.

Region	<i>lilfordi</i>	<i>leucotos</i>	Total
Abruzzo	14	0	14
Liguria	5	2	7
Toscana	4	1	5
Friuli V.G.	2	1	3
Lazio	1	0	1
Lombardia	0	1	1
Marche	1	0	1
Piemonte	1	0	1
Trentino	0	1	1
Grand Total	28	6	34

TABLE IV.– Biometry (mm) of a sample of Italian *D. leucotos* specimens. All the specimens were measured by GB apart from the four from PNALM (MB) and one from Ardea (Rome), whose measurements were originally reported by CHIGI (1903). Museums acronyms as in Table II.

Biométrie (mm) de certains spécimens italiens de D. leucotos. Tous les spécimens ont été mesurés par GB à l'exception des quatre conservés au PNALM (MB) et une d'Ardea (Rome), pour lequel les mesures ont été publiées par CHIGI (1903). Les acronymes des musées et collections sont identiques à celle du Tableau II.

Museum	N. Cat	Subsp	Sex	Locality	Date	Wing	Tail	Bill	Tarsus
PNALM	90/AV (ex 111)	<i>lilfordi</i>	Juv (♂?)	Parco Naz. Abruzzo, Pescasseroli		134	69	30.5	
PNALM	91/AV (ex 112)	<i>lilfordi</i>	♂	Parco Naz. Abruzzo, Pescasseroli		143	98.5	42.5	
PNALM	88/AV (ex 113)	<i>lilfordi</i>	♀	Parco Naz. Abruzzo, Pescasseroli		145.5	93.5	36.5	
PNALM	89/AV	<i>lilfordi</i>	♀	Parco Naz. Abruzzo, Pescasseroli		146	87	35.5	
MCZR	7834	<i>lilfordi</i>	♂	Ardea (Roma)	23 October 1902	146.0	105	37.0	22.0
MSNG	25241	<i>lilfordi</i>	♂	Liguria	Winter 1863	141.0	91	41.2	26.5
MSNG	32690	<i>lilfordi</i>	♂	Livellato (Genova)	Spring 1874	141.8	87.2	38	26
MSNM	Av 12767	<i>lilfordi</i>	♀	Parco Naz. d'Abruzzo	25 October 1960	147.0	92	38.3	27.9
MSNM	Av 12765	<i>lilfordi</i>	♀	Parco Naz. Abruzzo, Pescasseroli, La Difesa	November 1963	143.5	85	39.2	27.8
MSNM	Av 12766	<i>lilfordi</i>	♀	Parco Naz. Abruzzo, Pescasseroli, La Difesa	November 1963	146.0	82	37.4	27.6
MSNG	25240	<i>leucotos</i>	♀	Liguria	Winter 1863	142.0	94.5	37.5	28
MSNM	Av 35481	<i>leucotos</i>	♂	Ferrera Erbognone (Pavia)	21 March 1972	141.0	83	38	25.7