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ON THE ORIGINS AND HISTORY OF THE RED-LEGGED PARTRIDGE (*ALECTORIS RUFA*) FROM ELBA ISLAND (TUSCAN ARCHIPELAGO, ITALY)

Abstract - F. Barbanera, *On the origins and history of the red-legged partridge (*Alectoris rufa*) from Elba Island (Tuscan Archipelago, Italy).*

The red-legged partridge (*Alectoris rufa*, Galliformes) is one of the few avian species endemic to south-western Europe, where its native range extends from the Iberian Peninsula across central and southern France to north-western and central Italy, with the Balearics, Corsica, and the Tuscan Archipelago included. Game species heavily hunted since the ancient times and intentionally translocated by man onto several Mediterranean islands, the red-legged partridge can also thrive in anthropogenically modified landscapes. Noteworthy, in the western society, partridges can be found along with humans in the writings by some of the most distinguished ancient Greek and Latin authors as well as portrayed in many frescos, paintings, and mosaics. Partridges played different roles in the thousands of years between the Bronze Age and the XVI century (c.), ranging from resources for hunting, farming, eating, and medicine to pets, presents or even mythological characters. In this study, the scenarios traditionally hypothesized about the origin of the red-legged partridge from Elba Island, such as a population expansion following the late Pleistocene marine regressions and/or a historic introduction by the Grand Duchy of Tuscany, are revised in detail. Besides, an entirely new hypothesis advocating a human-mediated translocation starting by the end of the Middle Ages (XIV-XV c.) and linked to trading routes between the island of Corsica and the Italian mainland is offered along with novel and more recent (XIX and first half of XX c.) records on the history of the species on Elba Island. Ancient texts dating back to the early XVI c. and stretching at least until the end of XVIII c. along with the results of a recent genomic investigation of modern representatives from both Corsican and Elban *A. rufa* population, indeed, pointed to the former as a possible contributor to the origin of the latter. Finally, new information about the historic occurrence of *A. rufa* on the islands of Capraia and Gorgona is provided as well.

Key words - ancient world, Capraia, Corsica, Elba Island, galliforms, gamebird, Gorgona, Grand Duchy of Tuscany, historic trading routes, Middle Ages, Renaissance

Riassunto - F. Barbanera, *Sulle origini e la storia della pernice rossa (*Alectoris rufa*) dell'Isola d'Elba (Arcipelago Toscano, Italia).*

La pernice rossa (*Alectoris rufa*, Galliformes) è una delle poche specie di uccelli endemiche dell'Europa sud-occidentale, il cui areale nativo di distribuzione si estende dalla Penisola Iberica attraverso la Francia centrale e meridionale fino all'Italia nord-occidentale e centrale (Baleari, Corsica, ed Arcipelago Toscano compresi). Oggetto di intensa caccia sin dall'antichità ed intenzionalmente introdotta dall'uomo su diverse isole del Mediterraneo, la pernice rossa è in grado di prosperare anche in contesti fortemente antropizzati. Vieppiù, nella società occidentale le pernici sono state sovente protagoniste assieme all'uomo negli scritti di alcuni dei più illustri antichi autori greci e latini, nonché raffigurate in molti affreschi, dipinti e mosaici di grande pregio artistico. Dall'Età del Bronzo fino al XVI sec., le pernici hanno costituito non solo una risorsa per la caccia e l'allevamento, ma sono state anche apprezzati animali da compagnia, alla base di ricercate ricette gastronomiche, sorgenti per preparati di medicina preventiva e perfino protagonisti di miti. In questo studio, gli scenari tradizionalmente ipotizzati circa l'origine della pernice rossa dell'Isola d'Elba, quali il risultato di un'espansione demografica a seguito delle regressioni marine del tardo Pleistocene e/o un'introduzione storica ad opera del Granducato di Toscana, sono discussi in dettaglio. Inoltre, è presentata un'ipotesi del tutto nuova che contempla il possibile coinvolgimento a partire dalla fine del Medioevo (XIV-XV sec.) di traslocazioni mediate dall'uomo lungo rotte commerciali tra la Corsica e l'Italia peninsulare, e sono riportate inedite e più recenti (XIX e prima metà del XX sec.) informazioni circa la storia della specie sull'Isola d'Elba. Testi antichi che risalgono ad un periodo compreso tra gli inizi del XVI e la fine del XVIII sec. unitamente ai risultati di una recente indagine genomica su pernici rosse moderne dall'intero areale sembrano infatti indicare la Corsica come una possibile sorgente per l'origine della popolazione elbana. Infine, sono anche riportate informazioni inedite di carattere storico circa la presenza della pernice rossa sulle isole di Capraia e Gorgona.

Parole chiave - Capraia, Corsica, galliformi, Gorgona, Gran Ducato di Toscana, Isola d'Elba, Medioevo, mondo antico, Rinascimento, rotte commerciali storiche, selvaggina alata

Introduction

The red-legged partridge (*Alectoris rufa*, Galliformes) is one of the few avian species endemic to south-western Europe (Fig. 1).

Its native range extends from the Iberian Peninsula across central and southern France to north-western and central Italy including the Balearics, Corsica, and the Tuscan Archipelago. This monogamous species lives in small coveys on scrublands and other open and well-drained ground habitats, with a marked preference for low-intensity cultivations and a mix of fallow and uncultivated areas (del Hoyo *et al.*, 1994; Madge & McGowan, 2002).

The red-legged partridge is a game species hunted since thousands of years (see below). In the last decades, the high demand of birds spurred on by the rising shooting pressure induced the release of an ever-increasing number of farm-raised individuals (e.g., four million/year birds over the last 40 years in Spain: Blanco-Aguiar *et al.*, 2008; Casas *et al.*, 2012). Referred to as a spe-

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Figure 1. A red-legged partridge (image credit: Juan J. Negro, Doñana Biological Station, Seville, Spain).

cies of remarkable socio-economic interest if not as the most valuable among the small game (Gortázar *et al.*, 2002; Martínez-Fresno *et al.*, 2008), since WWII the red-legged partridge has represented an important resource in the regional economy of south-western Europe, especially in recent times when the hunting has been prioritized as an alternative to agriculture in rural areas (Council Decision 2006/144/EC, 20th February 2006). Intense harvesting and captive-breeding, extended trade across the entire species' range, and massive restocking plans turned into a vicious circle encouraging a level of exploitation that wild populations could not sustain. Overhunting combined with agricultural mechanization, use of pesticides, and rural abandonment caused a global demographic decline (Potts, 1980; Rands, 1987; Lucio & Purroy, 1992; Aebischer & Potts, 1994; Blanco-Aguiar *et al.*, 2003; Casas & Viñuela, 2010; López-Antia *et al.*, 2015; Forcina *et al.*, 2020) and warranted the recent upgrade of the *A. rufa* conservation status to Near Threatened by the International Union for the Conservation of Nature and Natural Resources (Birdlife International, 2020). Overall, since thousands of years partridges are a good example of game fauna heavily managed by man and intentionally translocated onto Mediterranean islands (Johnsgard, 1988).

In the ancient world, birds pervaded the landscape to an extent of abundance and diversity that they impressed their presence on the everyday life of both aristocratic and ordinary people (Mynott, 2018). In the western society, humans and partridges can be found in the writings by some of the most distinguished ancient Greek and Latin authors, as well as portrayed in many frescos, paintings, mosaics, and a wide range of items of great artistic value. Partridges played different roles between the Bronze Age and the XVI century (c.), ranging from resources for hunting, farming, eating, and medicine to pets, presents or even mythological characters, and regularly featuring in ancient art (Arnott, 2007). For instance, rock (*A. graeca*) or possibly chukar (*A. chukar*) partridges from mainland Greece or the Near East, respectively, are depicted in the famous 'Partridge fresco' (*c.* 1500-1100 BC) from the Caravanserai of the Palace of Minos at Knossos in Crete (Mynott, 2018). Also, partridges are among the protagonists of the fables from the storyteller Aesop (*23*, *235*; VI c. BC) and the play *Ornithes 1283-305* from the Greek comic dramatist Aristophanes (V c. BC). In Greece, partridges, sacred to Artemis (see *De Natura Animalium 17.35* by the Roman writer Aelian, I-II c. AD), were tamed to be used as decoys in small-scale hunting of wild conspecifics, as reported by Aristotle (IV c. BC) in his major work in ornithology (*Historia Animalium 614a10-30*) (Arnott, 2007; Mynott, 2018). With the change in public attitudes to wildlife, the earliest bird collections appeared in ancient Greece (V c. BC). Later, during the Roman period, the large-scale commerce of birds for consumption (eggs, chicks), squab productions, and for the private pleasure of their owners are reported by the Latin author Marcus Terentius Varro (I c. BC) in his *De Re Rustica III 5.13-14* as well as in *Historia Augusta 'Severus Alexander' XLI 6-7*, where partridges are mentioned among the birds included in the large aviaries of the emperor (late IV c. BC) (Mynott, 2018). In ancient Rome, *Alectoris* birds were a common food among other game species, as testified by the recipes of Marcus Gavius Apicius, a contemporary gourmet of the emperors Augustus and Tiberius (I c. BC), and the satires of the Latin poet Martial (I c. AD). While in the V c. BC Hippocrates (*Regimen II 47*) had suggested the consumption of the meat of partridges for a healthy diet, the use of these birds as preventive medicine was confirmed later on (I c. AD) by the Greek physician Galen (*De Alimentorum Facultatibus III 18* and *De Subtiliante Diaeta VIII 55-58*). In Pliny The Elder's *Naturalis Historia XXX 59-60* (I c. AD), the partridge broth with its crop separately ground in dark wine was recommended to settle

Figure 2. Fresco from the 'Tomb of the Triclinium' (*c.* 470 BC) in the Etruscan necropolis of Monterozzi (Tarquinia, central Italy): a red-legged partridge is located in the lower right corner. Sailko, own work, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=75415651.

tummy troubles. Finally, in the countless chronicles on bird vocalizations, an interesting one is that by the philosopher Porphyry (*De Abstinentia Ab Esu Animalium III 4*, III c. AD), who kept partridges as pets and described the alleged attempts of these birds to adjust their calls to converse with him (Mynott, 2018).

Likewise, also the Etruscans were greatly fascinated by birds. On the one hand, these were a divination symbol, as in the case of augurs who drew auspices from the flight of winged creatures. On the other hand, birds were part of their daily life, as testified by their portrayal in numerous scenes of banquets, games, hunting, and dances. Especially in the houses of aristocratic and hegemon people, the red-legged partridges were kept as pets (Cherici, 2014), as testified by the bird depicted in a fresco from the 'Tomb of the Triclinium' (*c.* 470 BC, Tarquinia, Italy: Fig. 2).

Over the centuries, partridges kept playing as synanthropic animals, as it can be appreciated, for instance, in the Roman mosaics from the 'House of Labyrinth' in Pompeii (Naples Archaeological Museum, Italy, II c. BC), the 'House of the Laberii' in Oudna near Tunis (Bardo Museum, Tunisia, I-II c. AD), and the villa of 'Los Villares' in Quintana del Marco, León (National Archaeological Museum, Spain, IV c. AD) (Arnott, 2007). While in the first centuries after Christ people were used to carry out and breed chukars along the Silk Road to get food on the way to Europe (Barbanera *et al.*, 2009), in the VI c. AD the first documented human-mediated red-legged partridge translocation took place in the West Mediterranean, with the establishment of this species in Corsica (Vigne *et al.*, 1997; Louchard, 2002). In the Middle Ages, partridges – similar to several other hunted species – represented an important resource as food, as revealed, for instance, by the identification of red-legged and rock partridges in bone remains (XIII-XV c.) excavated at the French castles of Montségur and Usson (Pyrenees: Lignereux, 2011) and in a landfill site of the Arab-Norman *castrum* of Calathamet in north-western Sicily (Sarà, 2005; Forcina *et al.*, 2015), respectively. Partridges were held in high regard also by the aristocracy of Renaissance Europe. In the pictorial works 'Saint Jerome in the study' (Fig. 3) and 'Saint Jerome in the desert' by the Italian masters Antonello da Messina (*c.* 1474, National Gallery, London) and Giovanni Bellini (*c.* 1480, The Uffizi, Florence), respectively, a partridge is portrayed as symbol of lust and illicit gain. On the one hand, the complex symbolism linked to the alleged habit of this bird to steal eggs to other species has no scientific basis and is probably due to the plentiful offspring that partridges can produce (La Mantia & Massa, 2012). On the other hand, these famous paintings reflect the demand of partridges as courtly ornamental species like exotic relatives such as the peacock (*Pavo cristatus*) (Forcina *et al.*, 2019).

In this study, the scenarios hypothesized so far about the possible origin of the red-legged partridge from Elba Island (Tuscan Archipelago, central Italy: Fig. 4) are revised in detail. This population is by far the most important of Italy in light of remarkable traits such as long natural history (see below), absence of restocking over the last 25 years and self-sustainability (Forcina *et al.* 2020). The species might have reached this island as the result of a population expansion following the late Pleistocene marine regressions (e.g.: Barsotti *et al.*, 2001; Zecchini, 2001; Forcina *et al.*, 2020). Alternatively, or in addition to, a relatively recent introduction

Figure 3. 'Saint Jerome in his study' (*c.* 1474), a painting by the Italian Renaissance master Antonello da Messina (National Gallery, London, UK). In the foreground, the lustful partridge (left) and a peacock (right): see main text for more details. The work of art depicted in this image and the reproduction thereof are in the public domain worldwide. The reproduction is part of a collection compiled by The Yorck Project (2002) 10.000 Meisterwerke der Malerei (DVD-ROM) and distributed by DIRECTMEDIA Publishing GmbH.

(XVIII c.) by the Grand Duchy of Tuscany could have occurred as in the case of at least one neighboring island from the same archipelago (Errico & Montanelli, 2000; Masseti, 2003; see below). Besides, an entirely new hypothesis advocating a human-mediated translocation starting by the end of the Middle Ages (XIV-XV c.) and linked to trade routes involving the island of Corsica is offered along with novel and more recent (XIX and first half of XX c.) records on the history of the red-legged partridge population from Elba Island.

Materials and Methods

A bibliographic search was carried by the author in libraries ('F.D. Guerrazzi' Labronica Library, Leghorn; Library System of the University of Pisa) as well as in public (State Archive of Leghorn, Archive of the Province of Leghorn) and digital (Gallica, from the National Library of France; Google Books; 'Pasquale Paoli' University of Corte Library, Corsica) archives in the years 2020 and 2021.

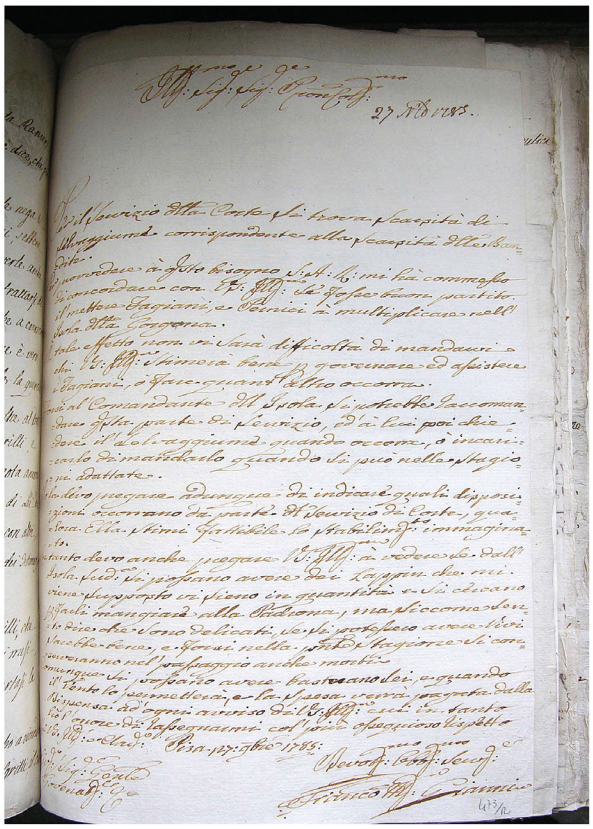
Results and Discussion

The Tuscan Archipelago consists of seven main islands in the Province of Leghorn located midway between the Italian mainland and Corsica (France). Elba is the third island of Italy by size (223.5 Km^2), the largest in the archipelago, and lies *c.* 10 Km off the coast in the Tyrrhenian Sea (Fig. 4). However, a connection to the mainland was periodically established since the late Pleistocene and most recently between 75,000 and 12,000 years ago (Foresi *et al.*, 2008). Indeed, during the last glacial maximum (22,000±2,000 BP: Antonioli & Vai, 2004; Antonioli *et al.*, 2007) the sea level was 130 m lower than today, and a wide land bridge connected the islands of Capraia, Elba, Pianosa, and Giglio to the Italian Peninsula, with Gorgona and Montecristo lying offshore by a very few kilometers. Therefore, many species of the Quaternary mammal fauna entered this peninsula, as testified by the fossil remains discovered in a cave near Porto Azzurro (eastern Elba: Fig. 4) and belonging to Merck's rhinoceros (*Stephanorhinus kirchbergensis*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), brown (*Lepus europaeus*) and mountain (*L. timidus*) hare, hippopotamus (*Hippopotamus amphibius*), cave bear (*Ursus spelaeaus*), Eurasian lynx (*Lynx lynx*), and other vertebrates (Del Campana, 1910; Rustioni & Mazza, 1993; Barsotti *et al.*, 2001; Zecchini, 2001; Pagliantini, 2014; Rolla, 2014). Likewise, Azzaroli *et al.* (1990) reported the occurrence of a molar from a proboscidean (possibly a straight-tusked elephant *Paleoloxodon antiquus*) on Giglio Island and remains of fallow deer (*Dama dama*) on the islet of Formica di Burano (Fig. 4). More importantly, the recent discovery of *Alectoris* in fossil remains of human meals found in Pianosa (Baccetti & Gotti, 2016) suggested that partridges might have reached this island (and most likely Elba too) during the marine regressions. Also, the rock partridge (*Alectoris graeca*), which today occurs in the Peninsular Italy on the Alps and Apennines, was present on Elba Island in the XVIII c. (Arrigoni degli Oddi, 1904; Di Carlo, 1976; but see Savi, 1829 about the habit of Tuscan hunters of referring the red-legged to as rock partridge). On the other hand, after the insularity was re-established 12,000-10,000 years ago (Pagliantini, 2014), the red-legged partridge, a notoriously poor flier, could have hardly reached Elba. However, not even such an event, albeit remote, can be entirely excluded, as the species is known to cover up to 65 Km-long terrestrial displacements (Cramp & Simmons, 1998), with the crossing of the English Channel (28 Km) suspected in some cases (Whiterby *et al.*, 1941).

The oldest record for the occurrence of *A. rufa* on Elba Island to date was provided in the book *Voyage à l'Isle d'Elbe, suivi d'une notice sur les autres isles de la Mer Tyrrhénienne* (in English, 'Travel to the Isle of Elba, followed by a notice on the other islands of the Tyrrhe-

Figure 4. The study area in Tuscany, central Italy. The islands of the Tuscan Archipelago are shown together with Corsica and the paleogeographic outline during the last glacial maximum (*c.* 22,000 years ago: black dotted line): Capraia, Elba, Pianosa, and Giglio were connected to the mainland through a wide land bridge (Vai & Cantelli, 2004).

nian Sea') written by Thiebaut de Berneaud (1808). However, older evidences came to the light in the present study. In the *Encyclopédie méthodique, ou par ordre de matières* (in English, 'Methodical encyclopaedia, or by order of subject matter') by the French publisher Panckoucke (de Vaugondy & de Morvilliers, 1782), the red-legged partridge is reported among the animals occurring on Elba (volume I, page 544). A few years later, the species appears in the writing *Memorie antiche e moderne dell'Isola dell'Elba* (in English, 'Ancient and modern notes from Elba Island') by Lambardi (1791), this representing the first record in Italian to date. This author reported partridges occurring in the vicinity of Rio nell'Elba in the eastern side of the island (Fig. 4).
When the human-mediated introduction of the red-legged partridge onto Elba Island is considered, the involvement of Etruscans (X to I c. BC) and/or Romans looks also plausible, although there are no proofs to support this hypothesis. At the time of their maximum expansion (VI c. BC), the Etruscans dominated over a large part of central Italy including all the northern Tyrrhenian islands and the entire eastern coast of Corsica. As testified by the discovery of wrecks and archaeological finds, Elba played an important role in the merchant network including the routes travelled by the Etruscans trading their wine to Gaul and the Gulf of Lion (Pagliantini, 2014). On the other hand, both paleontological and archeozoological records (Scandura *et al.*, 2010) indicate that the Romans successfully translocated the barbary partridge (*A. barbara*) from North Africa to Sardinia (Hartert, 1921; Mocci Demartis, 1992). As suggested by Masseti (2003), a far more likely involvement concerning a historic introduction is that of the Grand Duchy of Tuscany, a monarchy that existed in central Italy, with interruptions, from 1569 to 1859. In this respect, it is worth noting that also the Tuscan islands of Gorgona, Capraia, and Montecristo (Fig. 4) hosted red-legged partridge populations in the past, and, as such, deserve some attention for purpose of a comparative investigation with Elba. Unfortunately, the origin is certain only for *A. rufa* from the small (*c.* 2.2 Km^2) island of Gorgona (Errico & Montanelli, 2000,



Illustrissimo Signore Padrone Colendissimo

27 novembre 1785

Per il servizio della Corte si trova scarsità di selvaggiume corrispondente alla scarsità delle Bandite. Per provvedere a questo bisogno Sua Altezza Serenissima mi ha commesso di concordare con Vostra Signoria Illustrissima se fosse buon partito il mettere fagiani, e Pernici a moltiplicare nell'isola della Gorgona. A tale effetto non sarà difficoltà di mandarci chi Vostra Signoria Illustrissima stimerà bene per governare ed assistere i fagiani o fare quant'altro ancora. Forse al comandante dell'Isola si potrebbe raccomandare questa parte del servizio, ed a lui poi chiedere il selvaggiume quando occorre, o incaricarlo di mandarlo quando si può nelle stagioni più adattate. Io la devo pregare adunque di indicare quali disposizioni occorrano da parte del servizio di Corte, qualora Ella stimi fattibile lo stabilimento immaginato. Intanto devo anche pregare Vostra Signoria illustrissima a vedere se dall'isola suddetta si possano avere dei Lappin che mi viene supposto vi sieno in quantità e si cercano per farli mangiare alla Padrona, ma siccome sento dire che sono delicati, se si potessero avere vivi sarebbe bene, e forse nella presente stagione si conserveranno nel passaggio anche morti. Comunque si possano avere basteranno sei, e quando il vento lo permetterà, e la spesa verrà pagata dalla Dispensa, ad ogni avviso di Vostra Signoria Illustrissima cui intanto ho l'onore di rassegnarmi col più ossequioso rispetto di Vostra Signoria Illustrissima e Clarissima.

Pisa 27 novembre 1785

Devotissimo hobbligatissimo servitore
Franco Maria Gianni

Al Signor Generale Governatore [di Livorno]

Most Illustrious Very Respectable Lord Master

November 27, 1785

For the service of the Court there is a scarcity of game corresponding to the scarcity of the Game Reserves. To address this need His Serene Highness instructed me to arrange with Your Illustrious Lordship if it was a good idea to establish pheasants, and Partridges to grow up on the island of Gorgona. To this goal it will not be difficult to send there those Your Illustrious Lordship will consider suitable for managing and assisting the pheasants or doing anything else. Perhaps this part of the service could be reserved to the commander of the island, to which then asking for the game when necessary, or to appoint him to send it when possible in the most suitable seasons. I must therefore ask you to indicate what provisions are needed by the Court service, should you consider the envisaged establishment as feasible. In the meantime, I must also ask your most illustrious Lordship to realize if some rabbits can be obtained from the aforementioned island, that I am supposed to be there in quantity and are sought to allow the Mistress to eating them, but since I heard that they are delicate, if we could have them alive it would be good, and perhaps in the present season they will be preserved on the route even dead. Whatever the way we might have them six will be enough, and when the wind will make it possible, and the cost will be paid by the Kitchen, at every notice of Your Illustrious Lordship to whom in the meantime I have the honour to resign myself with the most obsequious respect for Your Illustrious and Distinguished Lordship.

Pisa November 27, 1785

Most devoted and obliged servant
Franco Maria Gianni

To the General Governor [of Leghorn]

Figure 5. Left side: a picture of the original letter sent by Franco Maria Gianni (an important collaborator of Grand Duke Pietro Leopoldo) to Federigo Barbolani da Montauto, the civilian and military governor of Leghorn, to start farming partridges and pheasants on the Island of Gorgona (*Archivio di Stato di Livorno, Governo civile e militare di Livorno, inv. n. 31, Lettera del 27 novembre 1785*). Authorization #MIC|MIC_ASLI|03/05/2021|0000598-P| [34.34.46/12/2019] by the Italian Ministry for Culture, State Archive of Leghorn. Right side, upper part: the transcription (without abbreviations) of the letter as kindly provided by Michele Montanelli (Livorno). Right side, lower part: an attempt of translation of the letter into English (by the author).

2021; see also Zuccagni-Orlandini, 1842). The species was introduced onto this island in the late XVIII c., as documented by a letter sent in 1785 by the historian, economist, and politician Franco Maria Gianni, one of the main collaborators of Grand Duke Pietro Leopoldo, to Federigo Barbolani da Montauto, the civilian and military governor of Leghorn (*Archivio di Stato di Livorno, Governo civile e militare di Livorno, inv. n. 31, Lettera del 27 novembre 1785*; Fig. 5).

This latter was requested to create a farm on the island to raise red-legged partridges and pheasants (*Phasianus colchicus*) to supply the canteens in Florence along with wild-caught rabbits (*Oryctolagus cuniculus*). However, no information about the provenance of the partridges is available, and farming ceased only a few years later (1793) following the complaints by local villagers about the damages those animals caused to their cultivations. These were captured with nets and translocated back to the Tuscan mainland into the *Reali Bandite*, namely the estates of the monarchy that existed across the whole region (*Archivio di Stato di Livorno, Governo 52, c.n.n. Gorgona, Lettera del 28 dicembre 1793*). As far as Capraia is concerned, the first record for the occurrence of *A. rufa* is dated 1709 (the oldest one in the whole Archipelago: Riparbelli, 1973). At that time, the island belonged to the Republic of Genoa (*Regno di Corsica et Capraia*, in English 'Kingdom of Corsica and Capraia'). It was administered by a local commissioner and a governor, who was resident in Bastia. In his book, Riparbelli reported that the island commissioner and Tommaso Griffi, the curate of Capraia, were used to go hunting red-legged partridges together. The species is also recorded in 1770-1771 (Moresco, 2008), when the island was under the administration of Corsica (since 1767). However, the harvesting of partridges was so intense that in 1789 the island commissioner enacted a severe law to ban not only the hunting but also the collection of eggs and/or the capture of young birds (a 25 Lire-fine to be paid by offenders: Riparbelli, 1973). Finally, it is worth noting that in 1806, after Napoleon Bonaparte's ascent to the throne, Capraia was annexed to the French

Department of Golo (1793-1811), which largely corresponded to the present-day *Haute Corse* (in English, 'Upper Corsica'). During the XIX c., the occurrence of partridges on Capraia is recorded several times (1806, 1843, and 1853) in a recent book by Moresco (2008) and by D'Albertis during his renowned sailing trip (1877). Although Arrigoni degli Oddi (1911) reported the species as already vanished by the early 1890s, its decline on Capraia was most likely caused by a very strong and famous storm that swept all fields of barley and wheat in 1897 (Riparbelli, 1973). However, *A. rufa* survived onto the island at least until the late 1920, as the hunting of partridges with decoys was still allowed between 25th and 31st December of that year (Brizi, 2005). Finally, the occurrence of the red-legged partridge on the island of Montecristo, which belonged to the Grand Duchy of Tuscany between 1814 and 1852, is very likely the result of an alleged historic introduction occurred during the XIX c. This population was recorded by D'Albertis (1877), Giglioli (1886), Salvadori (1887), and Arrigoni degli Oddi (1929), among others. On the other hand, the presence of the species on Montecristo in the second half of the XX c. is the result of a far more recent translocation soon failed due to the competition with the chukar partridge, which benefited from a much better adaptation to the rocky and mountainous environment of this island (Barbanera *et al*., 2007).

An entirely new and intriguing hypothesis about a human-mediated origin of the red-legged partridge of Elba Island can be put forward based on a very old literature record (dated 1506). In his essay entitled *'Rebus Corsicis'* (in English, 'On Corsican affairs'), printed for the first time in Italian in Paris and therein quoted as Di Cirneo (1834), Petri Cyrnaei, a presbyter and historian of Corsican origin, provided a detailed picture of the island in the XV c. This author reported extensively about the intense trade from Corsica to the adjacent islands and both the Italian and French mainland of myrtle leaves, salted fish, skins, horses, chestnuts, apples, wax, figs, oil, salt, wine, barley, red coral, timber, wheat, silk, and red-legged partridges, among many other natural goods. As indicated by Cyrnaei, while importations were limited to iron only, which came directly from the veins of nearby Elba (Martini, 1965), Corsica exported a remarkably high number of goods at the lowest prices for the time being (both agricultural and game products were in high demand). Such trade was enhanced by the numerous harbors and stopovers along the French island, and the easy journey to the nearby Elba and Tuscan coast. Noteworthy, in the III c. BC the Corsicans had already colonized the western coast of Elba, with toponymic, ethnological, and linguistic data pointing to the existence of a genuine Corsican-Elban community (Martini, 1965). Interestingly, Galardi (1996), who provided extended comments on the essay of Petri Cyrnaei, specifies that the game was exported from Corsica as either meat for consumption or present for the Italian princes. In this respect, it must be recalled that between the end of XIV c. and 1731, when it was annexed to the Grand Duchy of Tuscany, the island of Elba belonged to the Principality of Piombino (Fig. 4), a small Italian state administrated by the noble Appiani family. Particularly under the Lord Jacopo III (1458-1473), many Corsican sailors and shipowners visited the harbor of Piombino, this being in general agreement with the known migratory waves of people that by the late Middle Ages onwards periodically moved from the French island to Tuscany (Angiolini, 2013; Cancellieri, 2013). On the other hand, Jacopo III was an enthusiast of bird hunting and falconry, and he was used to capture these birds of prey on Elba, with his state being acknowledged as one of the most important suppliers of raptors (e.g., for the House of Medici in Florence: Meli & Tognetti, 2006).

The re-establishment and flourishing of trade started by the XIII c. and Corsica held most of its commercial exchanges with the Tuscan mainland. The harbor of Piombino was the main reference for the trade from the Corsican Cape and Bonifacio especially in the period 1280-1370 (Da Pozzo, 1973-1974; Fig. 4). Again, for instance, the ledger book (1388-1390) of a merchant from Pisa included almost exclusively goods from Corsica (animal skins, hundreds of lambs, wine, and clothes: *Archivio di Stato di Pisa, Fondi: Opera del Duomo, n. 1331*, in Taviani, 1969). Between the early XIII and XVIII c., the merchants from Corsica were used to sail by sight on small boats such as the feluccas on their way to the harbour of Leghorn, and due to the closeness of the islands in the Tuscan Archipelago, they could either easily repair ashore if the weather turned bad (Doneddu, 2009) or make a stopover in Elba to stock up on water and food (Martini, 1965). Moreover, in the very early XV c. this tight connection with the Italian island is testified also by the occurrence of many carpenters originally from Elba working to build boats in Corsica (Martini, 1966).

The so-called revolution of sea freight costs between the XIV and XV c. allowed for an expansion of the long-distance trade (Pini, 1981). The commerce was particularly thriving in the Corsican Cape and the region of Bastia during both XV and XVI c., and the inhabitants enjoyed such richness with little efforts (De Caraffa, 1882). Between the XIV and XVI c., the game kept being extraordinarily plentiful and exported especially to Genoa, Florence, Pisa, Leghorn, and Rome (Taviani, 1969; Vergé-Franceschi, 1996). Still in the XVII c., in the Genoese-administered estate of Migliacciaro, where red-legged partridges were extraordinarily abundant, game and cattle trading through the nearby harbor of Aleria was intense (Filippini, 1827;

Martini, 1966; Fig. 4). More importantly, in the XVIII c. during the reign of Louis XIV, the red-legged partridges were still captured in winter with nets and shipped from Corsica to many towns of mainland Italy (Mouffle d'Angerville, 1781; Capefigue, 1844). In this respect, it is worth noting that since 1802 Elba was included in the Department of Golo for about 10 years (Gillot, 1806; see also above). Finally, a strong support to the historic closeness between Corsican and Elban partridges came to the light very recently, when extended genomic data (more than 168,000 loci) from modern red-legged partridges sampled across the entire range of the species were obtained by Forcina *et al.* (2021) for the first time. These authors found a strong and exclusive similarity between the Corsican and Elban *A. rufa* population, thus supporting the possible contribution of the former to the origin of the latter. However, only the sequencing of the genomes of archival red-legged partridges (XIX c.) resident in natural history museums and originally from mainland Tuscany, Elba, and Corsica will offer new insightful tools to solving this fascinating historical issue.

Starting from the 1800 onwards, many authors recorded the presence of the red-legged partridge on Elba. Just before and a few years after Thiebaut De Berneaud (1808), Guthrie (1807) and Mantegazza (1820) reported the species on the Italian island, the latter near Capo Stella, a short peninsula in the southern part of Elba where it can no longer be found today (Fig. 4). Conversely, at that time game was so abundant in Capo Stella that Napoleon Bonaparte, exiled to the island (May 1814 to February 1815), was used to hunt partridges on horseback (Adamoli & Rigon, 2013). Later on, Savi (1829) and Repetti (1835) provided additional records; the latter, however, referred to a note read at the Accademia dei Georgofili (Florence) by the Italian naturalist Antonio Targioni Tozzetti about his trip to Elba in 1816. Again Repetti (1839) reported the presence of partridges around the Monte Capanne (western side of the island). In those years and until the 1870s, these birds were still abundant albeit regularly hunted (Ferrini, 1838; Carta, 1840; Zuccagni-Orlandini, 1842; De Angelis, 1844; Doderlein, 1869). However, a few years later Pullé (1879) stated that partridges were very rare, although they are still mentioned in the later writings of Giglioli (1886) and Salvadori (1887), with Damiani (1899) stressing a steep increase in the hunting pressure by the end of the century. Subsequently, the Elban partridges were first reported as experiencing a remarkable demographic decline (Martorelli, 1906) and later even (literally) "destroyed" (Ghigi, 1929). Therefore, it does not come as a surprise that the species was excluded from the list of those that could be hunted in the season 1934-1935 (*Decreto Ministeriale 'Calendario venatorio ed altri provvedimenti in materia di caccia', art. 8, Gazzetta Ufficiale n. 178, 31 luglio 1934*). In 1937, due to the impressive decrease in the partridge population, which was limited to a very few individuals in the most remote areas of Elba, the hunting branches of Rio Marina, Campo nell'Elba, and Portoferraio (Fig. 4) suggested some changes in the shooting calendar to warrant a higher protection for the species (*Venatoria ufficiale della Federazione nazionale fascista cacciatori italiani, delle Commissioni venatorie provinciali e delle Associazioni provinciali cacciatori, VII, n. 10, 11 marzo 1937, Roma*). After WWII, a private game estate (Le Ripalte) became operational (1947) in the south-eastern corner of Elba, thus starting the island toward decades of restocking plans (until the mid-1990s) carried out across its whole territory to counterbalance hunting drawings and performed with birds often imported from foreign countries, a management history reported in detail in Forcina *et al.* (2020).

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