

**LYNX SP. AT SPAIN DURING XIXTH CENTURY. A CASE OF
STUDY FROM ECOHISTORY**

**LYNX SP. EN ESPAÑA DURANTE EL SIGLO XIX. UN CASO DE
ESTUDIO DESDE LA ECOHISTORIA**

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ABSTRACT

This paper is about *Lynx sp.* in Spain during XIXTh century from Ecohistoy. Historical studies about fauna are usually carried out from a biological perspective. Biologists understand that ancient biogeography, behavioral data, or environments are key issues for conservation biology. Therefore, they conducted studies concerning past times. Sometimes we find that these historical studies are not as productive as they should be. This happens because of the nature of the historical documents, the meaning of the language or the historical context. We get more than 300 references about Lynxes. 254 of the references are related with Lynx locations. We made a proposal for evolution of Linx population from Ecohistory. Work with historical documents It's very important for Ecohistory and future works of Conservation Biology.

KEYWORDS: Lynx pardinus, Lynx linx, Biogeography, Conservation Biology, Ecohistory.

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RESUMEN

Este estudio trata sobre *Lynx* sp. en España durante el siglo XIX desde el enfoque de la Ecohistoria. Los estudios históricos sobre fauna suelen ser realizados desde un enfoque biológico. Los biólogos entienden que la antigua biogeografía, los datos sobre comportamiento o el medio ambiente son cuestiones clave para la Biología de la Conservación. Por lo tanto realizan estudios sobre tiempos pasados. En ocasiones encontramos que estos estudios históricos no son tan productivos como deberían de ser. Esto sucede por la naturaleza de los documentos históricos, el significado del lenguaje, el contexto histórico o elementos políticos. Se han obtenido más de 300 referencias sobre el lince y 254 localizaciones. Hacemos una propuesta de la evolución histórica de la población de Lince desde la Ecohistoria. Creemos que es importante trabajar con documentación histórica, para la ecohistoria y para futuros trabajos de Biología de la Conservación.

PALABRAS CLAVE: *Lynx pardinus*, *Lynx lynx*, Biogeografía, Biología de la conservación, Ecohistoria.

1. Introduction

This paper is about historical data about *Lynx sp.* at Spain in XIXth century. We should understand that most of the historic documents are neither research made by biologist, nor an ecology work. Usually, data related to biology are part of a wide range of documents such as Land Laws, Economical Studies, Geography researches, Trip's books, Dictionaries, Hunting manual, biographies, etc. Biological research was something rare before late XIXth Century. Thus, biological data in historic documents are scarce, non usual. Only in a few cases we can find a huge amount of data. Often, they are associated with economical studies and geographical studies, which are focussed in economical development. Most of them are linked with agronomic works, where animal are economical resources (Interesting for hunting in big-game, valuable fur), or a problem for economical development of livestock (Vermin). Studies of fauna or biodiversity exist, but are not usual in historical works. In this kind of works we can find description of behaviour, occasionally linked with advices about how to kill the animal. At times, there are "researches" about the usefulness of the animal in the wild. So there are descriptions about how many rats it can eat, hence is thought to be useful for peasant.

Second issue we should understand is words used to refer an animal can change throughout time. The same animal can be named differently in different areas of the same country. It could even be named in different ways in the same area. It is easy to be confussed about animal quoted in historical documents. Hence, we should know different ways to refer same animal.

Third issue is about the meaning of language, because it can change over time. Some adjectives, nouns and verbs have different meanings in XIXth century from they do today. At this work is important the name "tigre" (Actually Tiger), "gato montés" (Actually Wild cat) and adjectives as "clavo" (pin) and

“atigrado” (like a Tiger). Therefore, a historic dictionary becomes an important issue in any biological study.

Fourth important subject is historical context. Wars, politics, migrations or Industrial revolution are important facts that can change our way of focussing our study. There is link between population growth, economical activities or land use that can be very important when we are studying animals or forest at historical times. Therefore, Ecohistory is our theoretical reference. Nonetheless, It is useful for Natural History.

The aim of the paper is to work from ecohistory in historical documents to get data that can be useful in the management of seriously endangered felidae, *Lynx pardinus*. Also in management of *Lynx Lynx*, that is at the present extinct at Spain. Therefore, the research can be used in actual studies made by biologist because is constructive, mainly in conservation biology.

2. Methods

A review of bibliography is the point of departure, as it must be. After that, we made a study about different ways of naming lynx at Spain. We use historical studies, biological studies and historic dictionaries. Then, we will spend time with Historical documents. Furthermore, we increase references with other contemporary works (XIXth century works). We are studying *Lynx* in Spain during XIXth century. Data from medieval times or similar can creates a problem of distortion in aim of study. Works from early XX century about typical lynx areas have been read and referenced in same cases. In all historic documents we collect data about animal behaviour. We have been looking for data about extinction. Also, we made a read of data into an historical context. Historical context is given when data is interpreted.

At the end we made clarification of data of interest in management of wildlife referred to *Lynx* sp. recovering program.

3. How Lynx it's called in vernacular way.

It's called in different way during antiquity as shown Halna-Klein (1995): *lynx* at Pliny. Also *chama*, and *rufinus* by the people of Gallia, *lupus cerudrius*, “forme du loup, les taches du pard”, Also Isidorus of Seville, *lincis*, but related with the greek “*likos*” (Wolf). All references think that Lynx is a kind of wolf: Le bestiare di Ashmole; *lincis*, Libre du tresor and Bestiari di Brunetto Latini; *lincis*².

She adds about medieval times the work of Gaston Phebus, who made correction of “usual” mistakes. We can read “Toutefois, il y a diverses espèces de chats sauvages: spécialement, il y en a qui sont grands comme des léopards, et on les appelle tantôt loups-cerviers, tantôt chats-loups; et c'est mal dit, car ils ne sont ni loups-cerviers ni chats-loups. Il vaudrait mieux les appeler chats-léopards qu'autrement, car ils ont plus de traits communs avec le léopard qu'avec aucune autre bête”. Jacques du Fouilloux said that: “Cerviers sont chats sauvages grands comme léopards”³.

Newspaper from XIXth century provide the following names for Lynx sp: Lobo cerval, Lince, Gato clavo, Gato Montés, “animal like Gato campesino”, Pardo, Felis pardinus, gatopardo, lince pardo, pantera riojana, serval, tigre, tigre gallego, Felix lynx, and Lobo cerbal.

Other sources we can study are Historical dictionaries. We have done a study which is resumed in a Table. We have used RAEL dictionaries from XVIII, XIX, XXth centuries (See table 5)⁴.

² E. HALNA-KLEIN, Sur les traces du Lynx, *Rev. Etudes Médiévales*, 1995, N° 28, 119-128.

³ E. HALNA-KLEIN, Sur les traces..., 123.

⁴ REAL ACADEMIA ESPAÑOLA (1734), *Diccionario de la lengua castellana en la que se explica el verdadero sentido de las voces, su naturaleza y calidad, con las frases o modos de hablar, y otros proverbios y refranes y otras cosas convenientes al uso de la lengua*. Tomo IV (G-N). Imprenta herederos de Francisco Hierro. Madrid. Voz Gato Montés, 33. REAL ACADEMIA

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At Galicia, dictionaries from XIXth and early XXth century bestow us the words Lince=Lobo cervical. Lobo cervical =loboralaz, lobo rabaz, loberno, loboerme, lobo da gente, lobogato. Lubican= lobo recastado de perro. From Lupus+can, usual Spanish “mixto lobo”, So Lubican is not correct name, but it was used for lynx⁵.

Lopez Seoane (1861) remarks names as Lince vulgar (Felis Lynx), Lobo cervical, serval and tigre. He refers Martín Sarmiento, who gives the name of “tigre gallego”, a “kind of gato montés that is called tigre in Galicia because of its size and its marbled fur⁶.”

Company said that Black wolf is called Llop cerver- Loup cervier by locals⁷. At Lynx, (Felis lynx). He refers the name Loup cervier, given by “les fourreurs”⁸.

Antonio Luís Carrión (1875) enumerated the harmful animals of Malaga Province. There are two felidae: Catus ferus o gato salvaje, for Wildcat, and Felis pardinus (Gato clavo) for pardel lynx. The data is given in a chapter entitled “apuntes de selección artificial”⁹.

Daniel Giraud Elliot (1883) made a review of naming for felidae, as it was a general problem for zoologist at XIXth century. Lynx pardinus have a long debate about its condition as

ESPAÑOLA DE LA LENGUA (1803), *Diccionario de la Lengua Castellana. Compuesto por la Real Academia Española*. Reducido a un tomo. Imprenta Viuda de Ibarra, Madrid. Voz Gato, 428. (RAE Usual. 1803). REAL ACADEMIA ESPAÑOLA (1817), *Diccionario de la lengua castellana por la Real Academia Española*. Imprenta Real. Madrid. Voz Gato, 439.

⁵ AAUV, *Vocabulario Castellano- Gallego de las Irmandades de Fala*, Primera edición, Imp. Moret. La Coruña, 1933, 169-170.

⁶ V. LOPEZ SEOANE, *Fauna Mastológica de Galicia o historia natural de los mamíferos de este antiguo reino, aplicada a la medicina, a la agricultura, a la industria, a las artes y el comercio*, Santiago 1861. Imprenta de Manuel Mirás.

⁷ L. COMPANY, *Histoire naturelle de département des pyrénées-orientales*, T.3. Imp. Alzine. Perpignan, 1863, 45.

⁸ L. COMPANY, *Histoire naturelle...*, 49.

⁹ *Revista de Andalucía*. Año II. Tomo III, Antonio Luís Carrión (Dir), Málaga, 1875, 85.

species at XIXth century. Since its first description there were numerous authors that consider it as new specie. Elliot says It was named *Felis pardinus* by Temm. (1827), Less. (1827, 1839, 1842) Fisch. (1829), Keyserl. & Blas (1840), Blyth (1842), Gerv. (1855), Clerm. (1859), Murray (1866), Danf. & Alston (1877). Other names were *Lyncus pardinus*, by Gray (1842, 1867, 1869). Also *Felis cervaria* by Saunders (1869). Danford thought that animals of this specie were living at Asia Minor and Greece. Elliot tries to make the identification of felidae easier. At “*Felis pardinus*: the Spanish lynx” we get data like its relative frequency, the name of “gato Clavo”. About the way to refers lynx, it’s relevant the naming given to *Lynx rufous* at XIXth century. *Felis rufa*, the American wild cat, Bay cat, Mountain cat, Tiger cat, lynx montanus, Chat à ventre tacheté, and others. This must be seen relates with diversity in the ways of naming lynx rather that with the existence of different species. *Lynx lynx* is named “the European red lynx”; *Felis lynx*, *Felis lupulina*, *Felis vulpinus*, *Felis borealis*, *Felis virgata*, *Lyncus vulgaris*. *Lynx lynx* was not consider *Felis cervaria*, as the name was given to “the Siberian lynx”.

Another name given in papernews is “pardo”, which is adjudged as “*Felis pardinus* of Oken and Temmink”. It’s said it is “el gato pardo de los viajeros y lobo cervical de los académicos” Gato cervical or Lince bayo are referenced as *Felis rufa*, from America. Lobo cervical is still at Pyrenees and it’s more usual in other mountainous regions. The usual lynx at Spain is called “Lince Pardo”. About this animal is said “acomete menos destrozos a los rebaños... hace cruda guerra a los cervatos, cabras monteses y otros animales parecidos. Another name is referenced: pantera riojana, which have spotted fur¹⁰.”

Angel Cabrera La Torre wrote an informative tale about Felidae from Guadarrama. He says that the lynx is called lobo

¹⁰ *La Abeja*, Barcelona, 05/ 20/ 1865, 113.

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cerval, and lubican. Talking about “gato montés” said It hunt “mouses, birds, squirrels and... young fallow deer!”. Maybe, Cabrera have got news about the killing of young fallow deer by “gato montés” and he associated the name immediately with *Felis sylvestris*, even if fallow deer is not an usual prey for wild cat¹¹.

Official Hunting laws says that at Spain there are Lince (*Felis lynx*) and El gato clavo o lobo cerval (*Felix pardinus*), all of them in the category of big game wild animals¹².

Cabrera (1914) brings us Lobo cerval, Lince, Gato clavo, Gato cerval, Lubicán. He besides includes names in catalan as cat cerval, Loup çerver, and portugueses, Lynce, Gato cravo¹³.

Valverde (1963) call the animal lynx, but he includes that “los hombres del campo le suelen llamar gato serval”¹⁴.

C. Nores and V. M. Vazquez (1984) have the same names that Cabrera. They add asturian references such as llobu cerbal and lobu gris.

Maluquer i Sostres (1992) gives Garylup, Llop cerver, lob serber, Lleopardos, Lince. Garylup should be taken as Gatilup,

¹¹ *Alrededor del mundo*, N° 268, 07/21/1904, 37-38.

¹² *Revista Técnica de la Guardia Civil, Caza: Ley, reglamento y disposiciones oficiales dictadas hasta el día, relativas a la caza, recopilación anotada y comentada por el capitán Fernández Songel*, Año II, N° 19, Dirección, Redacción y Administración Calle de Churruca n°15, Madrid, 07/1911.

¹³ A. CABRERA, *Fauna Ibérica. Mamíferos*. Junta para ampliación de estudios e investigaciones científicas. Museo Nacional de Ciencias Naturales, Madrid, 1914, 207-210.

<https://archive.org/details/faunaibricamam00cabr/page/n251/mode/2up/search/lince>

¹⁴ J. A., VALVERDE, *Información sobre el Lince en España, Boletín técnico*. Serie cinegética, N° 1, Ministerio de Agricultura, Servicio general de Montes, Caza y Pesca fluvial, Impr. Rotaprint, 1963, 13.

with a “R” handwritten using enlaced *ductus*, hence It is the same name that Lobogato Gallego, Gatolobo Castellano¹⁵.

Zofío, J. B. & Vega, I. (2000) referred lobo cervical, lubicán, gato cervical, llubicán o gato clavo, lince pardo, tigre, tiguere, gato cravo, liberne, lince¹⁶.

Afterwards, Gutierrez Alva (2007) collects the names lobo cervical, gato rabón, lubicán, gato zarcillero, gato cervical, lobo cervario, lubicán, gato clavo, onça, leopardo, and Tigre in a study for Andalusia.

Some of words are non-mistakables (Lobo cervical, gato cervical, gato clavo, tigre, lince) Another vernacular name is not in these authors: *Gato Montés*. This one should be studied case by case, as it can be used for *Felis silvestris*, even for *Viverra zibetha*.

We will take *Gato Montés* as a lynx’s reference when:

1. It appears as an economic resource. Lynx can be seen as a big-game hunt trophy. It became valuable animal because of its fur. It doesn’t occurs with wild cat.
2. It’s linked with attacks against live stoked mammals, such as sheep or goat. Example: Cabrales in Madoz. It also doesn’t happens with wild cat¹⁷.
3. It’s think to be dangerous for farming or big-game hunting. It doesn’t occurs with *Felis silvestris*.
4. When animal description, colour, size, diet or weight are usual for Lynx sp. For example, Gato Montés refers a spotted *felidae*. The fur like a tiger, the cat kill fallow deer, the cat’s size is over 100cm, etc.

¹⁵ J. MALUQUER I SOSTRES, *Noticia de la fauna de Catalunya i d’Andorra al final del segle XVIII*, Butlletí de la Institució Catalana d’Història Natural -Any: 1992, N° 60, Secció de Zoologia, 9), 1992, 5-21.

¹⁶ J. B. ZOFÍO, & I. VEGA, ED, *El Lince Ibérico*, Editorial Debate / WWF- ADENA, Madrid, 2000, 136.

¹⁷ “varias especies de gatos monteses muy perjudiciales a los ganados”

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5. It's in an area where Lynx is quoted but there are no towns that made mention about lynx. Although Gato Montes is quoted in towns of the area where cases referenced before occurs. It happens in Pyrenees in Madoz. When we read its fauna, Lynx appears. When we read all towns in the area, Lynx is not quoted anymore. Furthermore, Gato Montes is quoted in the towns of Pyrenees in terms of points 1, 2 or 3. It happen in Navarra, where is referenced Lobo cerbal, but no village have new references. Also in Miñano (1826), where it disappear in the towns although It is quoted in Provinces (Sevilla) and mountains (like Gredos, Sierra de Béjar, Pyrenees, Guadalupe mountains...).

Example for Gato Montés as Lynx from Madoz can be seen at *Table 4. General references which disappear in localities.*

About Doñana, called in a text Oñana "Se ven en bastante número, el gato montés, el clavo y el cerval ó el lince. Este último se distingue por su magnitud, que llega á ser como la de un perro de presa-, por la hermosura de su piel rubia, manchada graciosamente de negro; por la ligereza de sus movimientos, por su astucia, y por el brillo penetrante de su ojo. Si tuviese la cola larga, podría tomarse por un hermoso tigre."¹⁸ We can assimilate gato montes with gato clavo, and gato cerval with lince. This text show that people though that there were two kinds of lynxes in Doñana, but it was related with the colour of the fur and usual biggest size of animals with big spots as have been said by Gutierrez Alva.

It's outstanding the article "Valentía de un cazador", in which is related how Tomaset Cascarrilla, inhabitant of Seo de Urgel, kill a "gato montes" at Castellbó the day 29 of September (1844). It was a very aggressive animal, which fought again five dogs and

¹⁸ *Revista Gaditana. Periódico popular*, Nº 13, 01/26/1840, Imprenta de Esteban Picardo, Cádiz, 204. It was published later as R. SÁNCHEZ, *Una cacería en el Coto de Oñana. publicada por Juan Perez de Guzman y Bouza*, editada por Guillermo Vázquez, Madrid, 1984, (1841).

left all of them hurt. The new is full of romanticism in its redaction. It's said that the animal even attack the hunter, who kill the fierce using his own hands after a failed gunshot. The size was huge. "nueve palmos y medio... desde las orejas a la cola". Hence an oversized 180cm length if catalán palmo is used. It can be the reference of Madoz for Seo de Urgel at Monte Cogoll. We are sure it's a Gato Montés that must be taken as a lynx, maybe Lynx lynx¹⁹.

Gato montés (Actually Wild cat) used instead Lynx in Spanish is usual in historic document of America. All of them were written by Spaniard people, so they use usual word from European Spain to describe animals from America, where they found Lynxes and spotted felidae. University of Mexico dictionary of Nahuatl said that "ocotochtli should be translated as Gato Montes, Lynx roufous"²⁰.

It happens in Fernández de Oviedo (1535) where ocotochtli is described ".es un gato montes...", even if the same autor use earlier (1522) "Gato cervical" in the work "Bestiario de Indias. Sumario de la Natural Historia de las Indias"²¹.

If Gonzalo Fernández lived at Madrid and his family was from Asturias, Gato montés could be used in these areas for Lynx.

Acosta (1590) talk about Gato montés, from north of México. We think it is the reference in García (1607), because he refers

¹⁹ *El imparcial. Diario de política, literatura, comercio e industria*, Año 3, 754, 10/13/1844, 3.

²⁰ <http://www.gdn.unam.mx/termino/search?queryCreiterio=ocotochtli&modulo=termino&accion=search&queryEnDiccionarios%5B%5D=0&queryPartePalabra=inicio&queryBuscarEn=nahuatlGrafiaNormalizada&queryLimiteRegistros=50>

²¹ G. FERNÁNDEZ DE OVIEDO, *Historia general y natural de las Indias, islas y Tierra Firme del mar Océano*, Enriquecida por José Amador de los Ríos, Ed. Real Academia de la Historia, Madrid, 1852 (1535)

<http://www.cervantesvirtual.com/obra/historia-general-y-natural-de-las-indias-islas-y-tierra-firme-del-mar-oceano-tomo-primero-de-la-segunda-parte-segundo-de-la-obra--0/>

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Acosta's work and the structure of text is the same²². In a closer time Covarrubias (1611) said that "El gato montés...Es de calidad y hechura del tigre. Los gatos monteses son muy dañinos"²³.

Clavijero (1776) said that Gato Montés are "*animales comunes en America y Europa*" and "*los gatos monteses, que son mayores que los domésticos, son muy feroces y temibles*". He also refers *Ocotochtli* as "*un tipo de gato montés*"²⁴.

At middle XVIIIth century the concept was used for *Felis silvestris* and was still in use for *lynx*. Dictionaries of *Real Academia Española de la Lengua* (RAEL) made a description of *felis silvestris* as Gato Montés, but the same name is use for *Lynx*²⁵. At RAEL 1803 we can read about Gato de clavo "It's a kind of gato montés. En Estremadura dicen Gato Clavo. *Felis silvester*"²⁶. The name Gato montés become a general misunderstanding. Dictionaries included descriptions of gato montés where animal have characters both of *Lynx* sp. and *Felis silvestris*. At RAEL of 1817 It's said "It's a kind of cat with red short tail, the body with

²²G. GARCÍA, *Origen de los Indios del Nuevo Mundo e Indias Occidentales*, Ed. CSIC, Madrid, 2005 (1607)

[https://books.google.es/books?id=D_gfWvYZfbkC&pg=PA318&lpg=PA318&dq=jose+de+acosta+1590+gato+montes&source=bl&ots=PjbEqepIgi&sig=ACfU3U1IzddjaGGggQeRbMxDbhPoRO-
fcw&hl=es&sa=X&ved=2ahUKEwjT2ZnanzJrnAhUyyoUKHU-
AA3oQ6AEwBH0ECAoQAQ#v=onepage&q=jose%20de%20acosta%201590%20gat
o%20montes&f=false](https://books.google.es/books?id=D_gfWvYZfbkC&pg=PA318&lpg=PA318&dq=jose+de+acosta+1590+gato+montes&source=bl&ots=PjbEqepIgi&sig=ACfU3U1IzddjaGGggQeRbMxDbhPoRO-
fcw&hl=es&sa=X&ved=2ahUKEwjT2ZnanzJrnAhUyyoUKHU-
AA3oQ6AEwBH0ECAoQAQ#v=onepage&q=jose%20de%20acosta%201590%20gat
o%20montes&f=false)

²³ SEBASTIAN DE COVARRUBIAS, *Tesoro de la lengua castellana o española*. Imprenta Luis Sánchez. Madrid. Voz Gato. 1611.

²⁴ FRANCISCO JAVIER CLAVIJERO, *Historia Antigua de México*, 1891, (1756), 22.
<http://www.cervantesvirtual.com/obras/autor/clavijero-francisco-xavier-si-1731-1787-2474>

²⁵ REAL ACADEMIA ESPAÑOLA (1734), *Diccionario de la lengua castellana en la que se explica el verdadero sentido de las voces, su naturaleza y calidad, con las frases o modos de hablar, y otros proverbios y refranes y otras cosas convenientes al uso de la lengua*. Tomo IV (G-N), Imprenta herederos de Francisco Hierro, Madrid. Voz Gato Montés, 33.

²⁶ REAL ACADEMIA ESPAÑOLA DE LA LENGUA (1803), *Diccionario de la Lengua Castellana, compuesto por la Real Academia Española, reducido a un tomo*, Imprenta Viuda de Ibarra, Madrid, Voz Gato, 428.

stripes, which are three long stripes in the back and other ones spiral shape in the body²⁷.

Geographical dictionaries have the same problem. Miñano (1826) quoted in Sevilla “Gatos cervales o monteses”. It means that at Sevilla Gato cervical and Gato montés are the same animal²⁸.

Essentially, Gato montes is used for refer *Lynx rufous* at México even in papers and biological studies made by Hispano-Americans researchers. At European Spanish, *Gato Montés* is used for wildcat. Hence, in consequence, people at Spain are not going to use documents about Gato Montés in any case related with *Lynx*. Therefore, It is a problem in the study of historic documents about *Lynx* sp.²⁹.

Martínez Reguera (1881) gives us, in one hand, Lince: Felix *Lynx* (Probably big spotted animal), In the other hand Felix pardinus=Felis cervaria=Lupus cervarius=Felis rufa?=Gato clavo=Gato cervical=Lobo cervical. (Probably small spotted animals). Lince de los Pirineos, maybe *Lynx lynx*, as a different animal. Hence, he thinks in three kinds of *Lynxes* in Spain³⁰.

²⁷ REAL ACADEMIA ESPAÑOLA (1817), *Diccionario de la lengua castellana por la Real Academia Española*, Imprenta Real, Madrid, Voz Gato, 439.

²⁸ SEBASTIAN MIÑANO Y BEDOYA, *Diccionario Geográfico y Estadístico de España y Portugal*, Imp. Fernández Peralta, Madrid, 1826.

²⁹ C. A. LÓPEZ-GONZÁLEZ, D. ÁVILA-AGUILAR, & M. F. CRUZ-TORRES, Abundancia del gato montés (*Lynx rufus escuinapae* JA Allen, 1903) en el Parque Nacional el Cimatario, Querétaro, México. *Acta zoológica mexicana*, 31(1), 2015, 138-140.

F. BOTELLO, P. ILLOLDI-RANGEL, M. LINAJE & V. SÁNCHEZ-CORDERO. Primer registro del tigrillo (*Leopardus wiedii*, Schinz 1821) y del gato montés (*Lynx rufus*, Kerr 1792) en la Reserva de la Biosfera de Tehuacán-Cuicatlán, Oaxaca, México, *Acta Zoológica Mexicana*, 22 (1), 2006, 135-139.

M. A. SALAS PÁEZ, Hábitos alimenticios de la zorra, coyote y gato montés en la Sierra Tarasca. *Revista Mexicana de Ciencias Forestales*, 12(62), 2012.

https://scholar.google.com/scholar?hl=es&as_sdt=0%2C5&sciodt=0%2C5&cites=4805361178513465104&scipsc=&q=gato+montes+mexicano&btnG=

³⁰ L. MARTÍNEZ Y REGUERA, *Fauna de Sierra Morena. Catalogo descriptivo de los mamíferos del término de Montoro, con la indicación de las utilidades y perjuicios que pueden producir al hombre*, Imprenta Romero Rodríguez, Madrid, 1881, 121-123.

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About “la Hoya de Baza”, which is a valley around Granada, local author says there is “lobo cervical, el lince... que en estos pueblos llaman Gato Clavo” Therefore all names are used for the same animal³¹.

Jose Maria de la Fuente y Morales, around 1926-1927 gave the names *L. pardellus*, *L. pardinus*, *Lobo cervical*, *gato clavo*, *gato cervical*³².

Piñeiro Maceiras, J. (2013) gives us *loberno*, *lobo rabaz*, *lobo serval*, *lobo cervical* y *tigre*³³.

Juan Jiménez, Miguel Clavero & Abilio Reig-Ferrer (2018) give us references about historical reports of *Lynxes* in northeast of Spain. We have no clear that all references should be *Lynx Lynx*. The present paper show that name use for *Lynx* were very wide, confusing and there weren't popular differences between both species, even the zoologist had no clear when the animal was a European *Lynx* or *Pardel Lynx*. It can be seen clearly at Elliot work about this issue. There is not relation between the name used and the animal described. There are references for *Lobo cervical* at Doñana. Also there are references from Cardena-Montoro, Baza and from Extremadura. In the north, we think that *Gato Montés* was usual name given for *Lynxes*. What's more, it could be usual traslation from catalán *Llop cerver*.

4. Point of departure: old scientific research.

Brú (1784) Show us a plate of “Gato Cerval o Lince (Also Serval, Marapute, Chat-pard Buffon, *Felis pardalis*, Linn. *Cato pardus Mexicanus* (Hernandez, *Historia Mex.*)”. About size, it's said “del

³¹*La Alhambra. Periodico de ciencias, literatura y bellas artes*, Serie 2, T. VI, nº 2, 1840, 33.

³²J. CABALLERO SOLER, *Fauna vertebrada de la provincia de Ciudad Real en el S. XX. Estudio comparativo de la obra “Catálogo sistemático de exposición faunística de la Provincia de Ciudad Real”*, Asociación cultural La Carrahila, 2017.

³³J. PIÑEIRO MACEIRAS, *El lobo cervical: notas etnográficas. Argutorio: revista de la Asociación Cultural “Monte Irago”*, 16(30), 2013, 16-20.

tamaño de la zorra”. About its diet, It Kill “Gatos silvestres, martas, armiños y ardillas... paxaros, ciervos, gamos, liebres”³⁴.

Royal Academy os Sciences of Spain (1804) said about “lobo cervical” that it just seems a wolf because of its howl”, so it must be related with the discussion about if “lobo cervical” was *canidae* (wolf) or *felidae* (cat). It is said that generally “it have the size of a dog”³⁵. 30 years later, It is said “El lince o lobo cervical de los manguiteros... no tiene nada de lobo”³⁶.

Cook (1834) talk about lynx. He had seen animal from central Spain. Animal seems to be identical of descriptions made by Oker and Temmink *Felis pardinus*. He says that fur are brought to Seville, where they are sold to make jackets. He bought a good example of jacket and it was send to The Brittish Museum. He though Lynx prey mainly over rabbit and partridges. People told him about two different kind of fur, although he only saw the fur wth big spots. The vernacular name is Gato Clavo³⁷.

Company, L. (1863) Lynx is taken as *Felis lynx*. He refers the name Loup cervier, given by “les fourreurs”. We get two locations, the forest of Formiguères and Salvanère³⁸.

Martínez y Reguera (1881) refers Lynx near Montoro at Los Aserraderos, which is an area near Venta del Charco, Cardaña, and not very far from Marmolejo. He add a comentary about this issue “es más parecido al gato que al lobo, como algunos zoólogos suponen”³⁹.

³⁴ JUAN BAUTISTA BRÚ. *Tomo I de la Colección de Animales y Monstruos del Real Gabinete de Historia Natural de Madrid*, Madrid, Lam. XXVIII, 1784.

³⁵ *Memorial literario o Biblioteca periodica de Ciencias, Literatura y Artes*. 06/1804, N° 46, año 4, Madrid, Imprenta de Vega y C°, 1804, 24.

³⁶ *Semanario pintoresco español*. 5/03/ 1837, N° 49, 4.

³⁷ S. E. COOK, Sketches in Spain during of years 1829, 30, 31 & 32. Vol. II, 1834, 283-284.

³⁸ L. COMPANY, (1863) *Histoire naturelle*... 49.

³⁹ L. MARTÍNEZ Y REGUERA, (1881), *Fauna de Sierra Morena*..., 121-123.

He thinks that there is a third kind of Lynx, Lince de Los Pirineos, “abunda... yo he observado el año 1865 en las cercanías de Panticosa”. About Lynx behaviour he says “ocasiona destrozos en las ganaderías y haciendas, porque le gustan las cabras, ovejas, gallinas y conejos”⁴⁰.

Lynx pardinus have a long debate about its condition as species at XIXth century. Since its first description, there were numerous authors that consider it as new specie. ELLIOT (1883) made a review of data about Felidae. Its reference about “Spanish lynx” names have been quoted before. He says “the peasants of Andalusia make jackets out of the skin”. Nothing it’s said about diet, but the illustration shows the animal near two rabbits. The size, “nose to root of tail” is 31 inches, the tail 5 inches. Hence 78’74 plus 12’7 cm. Total 91’4cm. He made measurements of crane and dentition, using specimen of British Museum N° 1228b, from Andalusia.

Lynx Lynx is named “the European red lynx, Felis Lynx. It’s said “it’s rare in france”. The size, “nose to root of tail” is 31 inches, the tail 9 3/4 inches. Hence 78’74 plus 24’8 cm. Total 103’4cm. The tail is the difference is size with Lynx pardinus.

Lynx lynx was not considered Felis cervaria, as the name was given to “the Siberian lynx”. The size of the huge lynx was “nose to root of tail” is 31 inches, the tail 5 inches. Hence 78’74 plus 12’7 cm. Total 91’4cm. As small as pardel lynx. From historic perspective, we understand that some mistakes were done because of the places from where fur were taken by naturalist: Constantinople, a place where fur from all world were sells. It’s quoted Danford.

At 1865, It’s said that Lobo cerval is Felis Lynx. Double size of a “gato Silvestre” , exactly “dos pies and 10 inches”. It’s

⁴⁰ L. MARTÍNEZ Y REGUERA, (1881), Fauna de Sierra Morena..., 122.

living at Pyrenees. It attacks fawns, near adults red deer and fallow deer.

Another name given is “pardo”, which is referenced as *Felis pardinus* of Oken and Temmink. It’s said it is “el gato pardo de los viajeros y lobo cervical de los académicos” Its referenced as inhabitant of sothern Europe and part of Asia. It’s quoted that Bori de Saint-Vincent found it at Gredos⁴¹.

Unknown author said at 1876 that Lobo cervical is still at Pyrenees and it’s more usual in other mountainous regions. The usual lynx at Spain is called “Lince Pardo”. About this animal is said “acomete menos destrozos a los rebaños... hace cruda guerra a los cervatos, cabras monteses y otros animals parecidos”. It referenced other name, pantera riojana, which have spotted fur⁴².

Francisco Antonio Elorza sends a fur of gato clavo to Mr. Samuel Widrington /Cook). It was taken at the area of Cazalla-Constantina. It’s said that It is and animal abundant in Sierra Morena Mountains⁴³.

López Seoane, V. (1861) mentions Lince vulgar (*Felis Lynx*). He refers Villalba and San Pedro de Orazo, both in Pontevedra. Also Sierra del Courel and “otros puntos frogosos de Galicia” He quoted Martín Sarmiento, who give the name of “tigre gallego”, a “kind of gato montés that is called tigre in Galicia because of its size and its marbled fur”. Description and size given is between 75 and 90 cm, which is not very far from Pardel lynx as said Clavero & Delibes (2013). Authors think Seoane could takes general data in Lynx description⁴⁴.

⁴¹ *La Abeja* (Barcelona) 05/ 20 / 1865, 113.

⁴² *Las maravillas y el progreso del siglo*, 10/09/1876, N° 12, 6.

⁴³ *El Corresponsal*. 10/ 10/ 1842, N° 1293. 4.

⁴⁴ M. CLAVERO & M. DELIBES, Using historical accounts to set conservation baselines: the case of Lynx species in Spain. *Biodiversity and conservation*, 2013, vol. 22, no 8, 2013, 1691-1702.

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Carrión (1875) said that *Lynx* attacks livestock near Malaga⁴⁵.

Of course Chapman & Buck (1910) give us data about *Lynx* at Doñana. General data for lynx is poor in this book. Just two animals are killed in a place where we already know there were lynxes. One of the animals was a “huge” male. The book is much more useful in other biological works, such as Ornithology.

5. Historiography of Historic studies about *Lynx* at Spain at XIXth century.

Studies about Historic distribution of *Lynx* sp. at Iberian peninsula started with Nores & Vazquez (1984), who were the first using Madoz and other historical authors in the study of Iberian lynx in a territory: Asturias⁴⁶.

About ecology, Nores & Vázquez (1984) were thinking in behaviour of *Lynx* and absence of rabbit. So they conclude that about pardel lynx “habría que suponer a éste una autoecología bien diferente a la descrita actualmente en el área mediterránea, donde su presa básica es el conejo”. They quote Moguel (1804) talking about *Lynx*. Afterwards NORES (1999) will explain that changes in behaviour can be because of the presence of Eurasian *Lynx*⁴⁷.

Nores & Vasquez (1984) refer the work “Diccionario Geográfico Histórico de España, por la Real Academia de la Historia” from the year 1802. The Asturias part was handwritten by Martínez Marina, but was not published in the Dictionary. Until now It has been preserved as a manuscript. Nores and Vasquez found *Lynx* referenced at twelve locations: “Santa Eulalia de Oscos, Cangas del Narcea, Somiedo, Quirós, Proaza,

⁴⁵ *Revista de Andalucía*. Año II. Tomo III, Antonio Luís Carrión (Dir.), Málaga, 1875, 85.

⁴⁶ C. NORES, & V. M. VÁZQUEZ, Datos sobre la presencia del linco en Asturias desde el S. XVIII, *Acta Biologica Montana*, Vol. 4, 1984, 361-370.

⁴⁷ C. NORES, ¿Es el lobo cervical un linco boreal (*Lynx lynx*)?, *IV Jornadas Españolas de Conservación y Estudio de Mamíferos*, Libro de resúmenes, Sociedad Española de Conservación y Estudio de Mamíferos, Segovia, 1999, 87.

Santo Adriano, Morcín, Lena, Langreo, Parres, Caso y Llanes, at the first place it's said hay gran número"⁴⁸.

Nores and Vazques explain the facts that made the Lynx an extinct animal at Asturias, where Brown bear has been preserved today because of its mountains wilderness. Nores & Vasquez thought in a dramatic decrease of lynx at early XIXth century, as they found just a reference in Madoz (Morcin). The aim of Nores study becomes to study evidences of Eurasian Lynx at northern Spain in general and its presence in Asturias in particular⁴⁹.

The work of Nores can be completed with later research of J.P. Torrente & L. Llaneza Rodríguez (1996)⁵⁰. Also with Fernandez, Ruíz de Azua & Tejado (2003) for Gorbeia Mountains, between Vizcaya and Alava⁵¹.

Granados Corona (1987) made its Tesis, where a huge amount of data is studied in relation with climatic change, floods and vegetation, which are the main object of study. Fauna is referenced but as a poor secondary issue. This Tesis is the first work that gives us a sequence of environmental change, natural or antropics, through history in a natural reserve. The work is not the reference for studies of distribution in a wider territory. It's focussed in Doñana territory. Even if It is not important for Lynx sp., we want to quote the work as the beginning of ecohistory,

⁴⁸ <https://www.lne.es/asturama/2012/10/17/huellas-lynce-asturias/1313244.html>.
<https://bibliotecavirtual.asturias.es/i18n/consulta/registro.cmd?id=2740>

⁴⁹ <http://www.uniovi.es/en/-/presencia-lynce-boreal-cornisa-cantabrica>

⁵⁰ J.P. TORRENTE & L. LLANEZA RODRÍGUEZ, Sobre'l llobu cervical y la so presencia n'Asturies, *Asturies: Memoria encesa d'un país* 2, 1996, 81-86.

⁵¹ J. M. FERNÁNDEZ, N. RUIZ DE AZUA, & C. TEJADO, Notas históricas sobre algunas especies faunísticas, *Estudio faunístico del Parque Natural de Gorbeia, Fauna de Vertebrados excepto quirópteros*, J.M. Fernández. (Coord), Diputación Foral de Navarra, 2003, 33-92.

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environmental history and the idea that using historical document can improve conservation biology⁵².

A. Rodríguez & M. Delibes (1990) have the reference book for Lynx at Spain and it give us the historic distribution of Lynx for 1960. Moreover, the map about Lynx pardinus distribution is quite similar with our proposal of distribution for ninetieth century so it's a very useful work anyhow. It seems that most of extinction occurs at middle XXth century. About the present research, we can see similar pattern in the territory occupied by Lynx sp. between middle XIXth century and 1960. It's significative the presence of Lynx in Pyrenees, Galicia, north of Aragon, and mountains such as Sistema Ibérico, Sierra de San Pedro, Sierra Morena, Sistemas Béticos and Sistema Central. The main difference is that population are isolated in XXth century, so it was critical for the survival of Lynx sp.

Maluquer i Sostres (1992) adds historical references from the end of XVIIIth century and early XIX. For this reason, we include all quotes as valid for the present paper. Localities are Alt Urgell; Castellbó, Berguedà; Espinalbert, Pallars Jussà: Saroca de Bellera, Pallars Sobirà: Tirvia, Vall d'Àneu, Vall de Aran; Arròs i Vila, Viella. Vallès occidental: La Barata (Matadepedera). Also is referenced work of Lois Company, so He has included Formiguera and Salvanera. Last ones have been quoted by us before⁵³.

Castells, A. & Mayo, M. (1993) don't give us any data about old names. Theirs researches give us information about the Lynx in the ecosystem. We use this book as reference for mammals at Spain at the end of XXth century⁵⁴.

⁵² M. GRANADOS CORONA, *Transformaciones históricas del parque nacional de Doñana*. Depósito Universidad de Sevilla. Tesis Doctoral inédita. 1987, 390-395 (about fauna) <https://idus.us.es/handle/11441/48253>

⁵³ J. MALUQUER I SOSTRES, *Noticia de la fauna ...* 5-21.

⁵⁴ A. CASTELLS, & M. MAYO, *Guía de los mamíferos en libertad de España y Portugal*, Ed. Pirámide, Madrid, 1993.

Zofío & Vega (2000) provide us data about use of Lynx fur at XIXth century. Brehm said Lynx fur was very valuable for same country people. At early XXth century, 500 lynx furs were sold at Spain each year⁵⁵.

Gragera Diaz (2000) includes data for Lynx at Extremadura during historic times. He takes account of data from Madoz at the town of Azuaga. He doesn't talk about the reference in Sierra de San Pedro, but include the area with data from earlier centuries. He made mention of Lynxes around boundaries of Extremadura, such as Candeleda (Ávila), Aroche, Cumbres de San Bartolomé, (Huelva) and Agudo (Ciudad Real). The references for Montes de Toledo around Villuercas-Ibores are very relevant⁵⁶.

Fernández, Ruíz de Azua & Tejado (2003) made the historical study for Gorbeia Mountains, which are between Vizcaya y Alava⁵⁷. This author refers names used for lynx in northern Spain, mainly around Navarra and País Vasco. For XVIth and XVIIIth century they add names as Tigre, tiguere, onza, gato cerval, leopardo. They explain that Nores and Vasquez don't localize the word "lynx" before XIXth century because of the Science development at this moment. They collect data for XVI and XVIII century. We won't use most of these data as we work in XIXth century. At anycase we could say that animals were quite big, and they were quoted at 1572 Bernedo, "gato cerval", 1572 Santa Cruz de Campezo, "gato cerval", 1597, Arrázola (Álava) "onza" at "peñas de Etxagüen de Aramayona". From this moment tiger is the usual name for Lynx, as 1762, "tigre de Arno", en Motriko 1776, monte Aránzazu, Idiazabal, 1782 Lizarza (Guipúzcoa). There is a reference as Leopard from

⁵⁵ J. B. ZOFÍO & I. VEGA, (Eds.) *El Lince Ibérico*, Editorial Debate, / WWF- ADENA, Madrid, 2000, 136.

⁵⁶ F. GRAGERA DIAZ, Distribucion historica del lince iberico en Extremadura, *Quercus* 174, 2000, 42-45.

⁵⁷ J. M. FERNÁNDEZ. N. RUIZ DE AZUA, C. TEJADO, Notas históricas..., 33-92.

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1777 Lizarza. More data for tiger (*Lynx* sp.) came from XVIII century at sierras de Cantabria, Toloño, montes de Izquiz y Gorbeia. Author found a historical document for Gorbeia: “Decretos y ordenanzas que este Valle de Zuia pone para el gobierno cristiano y político de los vecinos, moradores y habitantes en el año de 1758”. Here, fur of tiger (*Lynx*) is as expensive as a fur of bear⁵⁸.

These authors already work with archaeozoology. There is much Quaternary evidence along Pleistocene for *Lynx pardinus* and *lynx lynx*. We prefer to focus the data for Holocene. At Pleistocene, Spain have animals like leopard, hyena, elephant, lion, rhinoceros and a large list of fauna that can't be replaced easily in Europe⁵⁹.

Fernández, Ruíz de Azua & Tejado (2003) give us the following data: “At Diccionario geográfico histórico de España (Real Academia de la Historia, 1802) se cita para Gorbeia la presencia de cuando en cuando de algunos “pequeños tigres y otras fieras no comunes en el país”, referencia copiada por Miñano (1826) en los mismos términos”. We get few new location of *Lynx* sp. that have been quoted at this paper.

Fernández, Ruíz de Azua & Tejado (2003) add “La Junta General de Vizcaya decretó en 1818 suprimir las gratificaciones por captura de zorros, pero continuar con “las designadas a cazadores de osos, lobos, y lobos cervales, que vulgarmente se llaman tigres”, ratificándose además en estos extremos en 1841”⁶⁰. They use Madoz work. They concludes that “Madoz... “cita en Orozko la caza de “tigres pequeños... y en el caso de Gorbeia la aparición de vez en cuando de algunas onzas o pequeños tigres”. There are not references of Lobo cerval for Navarra and about *Lynx* at Pyrenees. Also there are no references

⁵⁸ *Idem*, 69-70.

⁵⁹ *Idem*, 69.

⁶⁰ *Ibidem*

about Gato Montes as Lynx. Authors, quoting Olavarriá, 1951 says that “En 1862, la Provincia de Álava ...abatir en tiempo de nieve, entre otros animales dañinos, “algún tigre que se ha visto”. Authors give data about prize payment disappearing at early XIXth century. They give us references as the last payment at Barambio in 1801 and from Urcabustaiz from 1803.⁶¹ Other references are given at Sierra Elguea (1815)⁶², Trucíos (1815 y 1816)⁶³. Authors add reference of Gorosabel (1899) for kill of Lynx at 1820 in Guipúzcoa. They understand there is a mistake in the reference of last Lynx for 1837, because they have data for another Lynx at Villanañe, Álava, sometime around 1919⁶⁴.

For Andalusia, Gutierrez Alba (2007) has done a huge effort to get data about Lynx pardinus. His work includes data from medieval times until XXth century. Nevertheless, Gato montés is not included as feasible form used for lynx. He used works of numerous naturalist from XIXth century, such as Madoz (1845), George Clark, (1850), Martínez Reguera (1881) and Graell (1897)⁶⁵.

Gutiérrez Alba (2007) quoted Ramírez y las Casas-Deza (1840) who refers “*Gatos cervales*” at San Calixto, near Hornachuelos. (Cordoba province)⁶⁶.

Cassola (1855) call it *Lince*. He said they are bigger than Lynx from other areas because it has the same size that a “perro perdiguero”. Gutierrez Alba (2007) says that author shows presence of Lynx at Baza Mountains. No pages are quoted, so we

⁶¹ J. M. FERNÁNDEZ, N. RUIZ DE AZUA, C. TEJADO, Notas históricas..., 70.

⁶² *Idem*, 71.

⁶³ *Idem*, 71: “documentada en Diputación Foral de Bizkaia”

⁶⁴ J. M. FERNÁNDEZ, N. RUIZ DE AZUA, C. TEJADO, Notas históricas..., 71. There is documents for payment in Archivo del Territorio Histórico de Álava.

⁶⁵ V. GUTIÉRREZ ALBA, Apuntes históricos sobre el lince ibérico en Andalucía, *Galemys*, 19 (2), 2007, 33-52.

⁶⁶ We don't have read this book, which is preserved at Córdoba, so we add the data from Gutierrez Alba.

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include it. Later, we will show other references for this area from newspaper which are older in time⁶⁷.

Author quoted other references between 1870 and 1880 from Granada province: Marquesado del Cenete, Sierras de Guadix, Lopera y Yerena. He aswell made menction of an isolated lynx that was killed at San Roque (Cadiz province) at 1913⁶⁸. He also reviews the work of Collantes de Teheran. Here we think reference for Gato Montes at Moron should be taken as presence of Lynx. It's said "bigger vermin at Moron are wolf and gato montés"⁶⁹.

Gutiérrez Alva (2007) includes local data such as "Premios a los matadores de animales dañinos" from Calañas (Huelva), were Lynx appear somewhere between 1818- 1861. He quoted absence of Lynx at two great works "Apuntes relativos a la aparición y extinción de animales dañinos en las provincias del Reino. 1855-1859. (Ministerio de Fomento 1861)". And also, no lynxs at "Animales dañinos extinguidos en la Península é islas adyacentes, por los cuales se abonaron premios durante el año 1864 (Junta General de Estadística1865)". We think that Gato Montés should be *lynx sp.* in same condition we said before.

Boy (1840) gives us key issues to understand the problem. We read "Lince: Se conoce como lobo cervical o cervario"⁷⁰. Author gives us data about price of a Lynx fur and the conection between Lynx fur and peleteries industry. It was used for manguito dress, in France and other for other clothes in Turkey. Longest hairs, clearest and well-spotted fur were better valued.

⁶⁷ J. B. CASSOLA, *Ensayo histórico sobre la antigüedad, honores y privilegios de la muy noble y leal ciudad de Baza y pueblos de su abadía*, Baza, Imprenta de P. Flores, 1855, 26.

⁶⁸ V. GUTIÉRREZ ALBA, *Apuntes históricos...* 38.

⁶⁹ COLLANTES DE TERAN. *Historia de Morón de la Frontera. Biblioteca de Estudios Moronenses*, 1, Antonio Miguel Bernal y Manuel García Fernández (Ed), Fundación Fernando Villalón, Morón de la Frontera, 1990, (1840).

⁷⁰ J. BOY, *Diccionario teórico, práctico, histórico y geográfico de comercio publicado bajo los auspicios de la M. I. Junta de Comercio de Barcelona*, Tomo III, Imp. de Valentín Torrás, Barcelona, 1840, Voz Lince, 677.

The fur cost was 10-12 turkis piaster. Between 1844 and 1885, each peaster was valued in equivalence of gold, exactly 6'6 g. of gold each one. That means that a Lynx fur price was 66g. – 79'2 g. of gold. 100 Spanish *pesetas* was 32'25g. of gold. So, a Lynx fur can be sold near 200-250 *pesetas*. Spanish price for vernin at 1834 was 20 *reales* if was a Lynx, hence the fur was valued in 5 *pesetas*. This can help to understand why Lynx are scarce, except the less spotted fur, that we think was widely known as *gato montes*. Even this one is not as common as it must be. BOY (1840) says that Spanish lynx furs were sold in France⁷¹.

When Gutiérrez Alva (2007) studied Dictionary of Madoz, he found lynx at Cumbres de San Bartolomé, Aroche, Bollullos, Hinojos, and Almonte. Gutierrez Alva argues that there are no more Lynx references at Madoz, “maybe because of the informer”. We believe He is right. Furthermore, he made mention of El Almendro, where he found relevant the existence of “other animals which are kinds of *gato montes*”. It should be related with Lynxes. We have other quotes. Another work used by him is Tomas Lopez Dictionary where we can read “Gatos clavos, gatos cervales ... in these mountains” (Sierra Morena, Huelva).

Author read a keystone work for identify lynx at historic documents. “Una cacería en el coto oñana”, written by Rafael Sánchez (1841). Work was quoted as Sánchez 1994, because he used a reedition. He uses the book for refer Lynx at Doñana. The words of Sanchez “se ven en bastante número el gato montés, el clavo y el cervical ó el lince”. That sentence can be understood in the following way: Are seen in great number *gato montés*, (called)... *clavo* (¿Small spotted?) and (*gato*) *Cervical* or *Lynx* (¿Greater spotted animal?). Another reading could be a different animal for each one, but it is impossible at Doñana, where we are sure that all of them are the same species. *Gato clavo*, *gato serval*

⁷¹ J. BOY, *Diccionario teórico, práctico...*, 677.

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and lince are widely recognised as the same animal, hence, *Lynx pardinus*. It's like this because He is talking about Doñana at 1840⁷². About the original, Doñana is called in the text Oñana. Full reference is “Se ven en bastante número, el gato montés, el clavo y el cerval ó el lince. Este último se distingue por su magnitud, que llega á ser como la de un perro de presa, por la hermosura de su piel rubia, manchada graciosamente de negro; por la ligereza de sus movimientos, por su astucia, y por el brillo penetrante de su ojo. Si tuviese la cola larga, podría tomarse por un hermoso tigre”⁷³. This text show that people though that there were two kinds of Lynxes in Spain, but usually it was related with the color of the fur and usual biggest size of animals with big spots.

Fray Juan Ruiz bestows Hinojosa del Duque, in Cordoba mountains at the year 1922. We read “del orden fieras, al lobo, zorra y gato montés; algún oso menor o tejón y más frecuentemente a urones, ginetas, fuinas y alguna otra alimaña”⁷⁴. Gato Montés here could be taken as Lynx, because of the use of “ ; ” that makes a group of fierces.

Author referenced Martínez Reguera (1881) for Montoro, (Córdoba) at Sierra Morena: “convivían unos lince que se alimentaban de pequeños vertebrados, junto a otros de mayor tamaño (comúnmente llamados “gato clavo”, “gato cerval” o “lobo cerval”) muy capaces de cazar cérvidos”⁷⁵. He thinks that the work gives a view of two different species at Sierra Morena. Lynx is supposed to be an animal with grey fur and spotted fur which is called Lynx, which attack livestock. Another animal, golden colour and well spotted, which are called “gato clavo”, “gato cerval” o “lobo cerval” which is said to be mighty of kill

⁷² R. SÁNCHEZ, *Una cacería ...* Earlier reference from 1840 in *Revista Gaditana. Periódico popular, Op. Cit.* 204.

⁷³ *Revista Gaditana. Periódico popular*, N° 13. 01/26/1840, 204.

⁷⁴ V. GUTIÉRREZ ALBA, *Apuntes históricos...* 42.

⁷⁵ *Idem*, 47.

animal near the doublé in size. We work with the original of Martínez Reguera (1881) in our paper⁷⁶.

In La Rioja, C. Zaldívar Ezquerro & J. L. Gómez de Francisco (2008) provide quotes for late XIXth century at Sierra del Moncayo, and for early XXth century at Sierra de Madero y Laguna de Cameros. They add a new name, “lobo corbato”. They reference last lynx of Alava for 1834 is not correct. We quoted before the reference of Fernandez Villanañe, Álava, sometime around 1919⁷⁷.

Galicia has old references by Lopez Seoane (1861), and older references by Martín Sarmiento. These have been quoted before. There is an earlier mention of Lynx in Ancares of Lugo in 1987, en Castillo de Loiras, en Valle de Vilarello. We wish to include this reference because we found a possible reference at Madoz in a close area at Santa María do Casaio, which have no sense as an isolated quote⁷⁸.

Casas-Marce, M., Revilla, E., Fernandes, M., Rodríguez, A., Delibes, M., Godoy, J. A. (2012). Give a set of data very interesting for this paper, as they positioned Lynx pardinus from fur and naturalized animals placed in museum or private collection. We just know that there are near 40 animals from XIXth century until middle XXth century. Dadly, she doesn't give exact locations of them year by year, so we can't have data for a XIXth century study. We found their method as a very

⁷⁶<http://www.bibliotecavirtualdeandalucia.es/catalogo/es/consulta/registro.cmd?id=1013504>

⁷⁷ C. ZALDÍVAR EZQUERRO & J. L. GÓMEZ DE FRANCISCO, Apuntes para la desdichada historia del oso, la cabra montés y el lince en La Rioja. *Belezos: Revista de cultura popular y tradiciones de La Rioja*, 6, 2008, 44-49. See 49, Last reference in Newspaper El Najerilla, nº 201, February of 1936.

⁷⁸ A. P. CLEVENGER, Observación de un lince ibérico (*Lynx pardinus*) en la provincia de Lugo, norte de España. Doñana, *Acta Vertebrata* 14, 1987, 140-142. (See food notes 141)

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innovative way to determinates the kind of lynx which were inhabitant in each place⁷⁹.

Ciudad Real province is studied in a work by Jose María de la Fuente y Morales. (1926-1927) Data came from XIX century and early XX. Lynxes are quoted as *Lynx pardinus*, *L. pardellus*, *L. Pardinus*, Lobo cerval, gato clavo, gato cerval. Linxes are located at Almodovar del Campo and around it (La Viñuela, El Retamar, Calero Colection at Villarubia and Valdepeñas, Sierra Morena and Fontanosas (Finca El Peñón, 1914). Last one had a weigth of 16.500 g and a total size of 1,80 m. “Usual lynx’s foods” are “Young deers, wild boar, hare and partridges”. Author says that lynx fur is very valuable because It is used in fashionable dresses⁸⁰.

We have usual data about *Lynx* sp. predating over young deer, fallow deer, roe deer and livestocks. It gives us facts for the theory of “lost behaviour”and “indirect genetical selection”. We understand that the most aggressive Iberian lynx preyed on ungulates, even on livestock. Hence they were persecuted because of this. The smaller, fearful, less aggressive Iberian lynx weren’t hunted with the same intensity. We have this idea from the work of Guy Monfort (1954) where It’s said that *Lynx* must be killed in Doñana when they attack young fallow deer. Over time, lynx size and agressivity could decrease⁸¹.

We gave references for France of *Lynx pardinus* at Formiguères and Salvanère⁸². There is another reference about

⁷⁹ M. CASAS-MARCE, E. REVILLA, M. FERNANDES, A. RODRÍGUEZ, M. DELIBES, J. A. GODOY, The Value of Hidden Scientific Resources: Preserved Animal Specimens from Private Collections and Small Museums, *Bioscience*, 62, 12, 2012, 1077-1082.

⁸⁰ WWW.lacarrahila.cadademia.edu. J. CABALLERO SOLER. *Fauna vertebrada...*

⁸¹ G. MONFORT, *Retrato de una tierra salvaje. La historia de las expediciones al Coto de Doñana*. Por Guy Monfort ilustrado por Eric Hosking. Introducción del Mariscal de Campo Vizconde Alanbrooke. Diputación de Sevilla 1994 (1954). See 142 and 123.

⁸² L. COMPANY, *Histoire naturelle ...*, 49.

Iberian Lynx at 1962 (Macizo de Carnigou) and European Lynx at 1917 at Macizo de la Neouvielle⁸³.

Clavero, M. and Delibes M (2013) makes a huge work, in the same way that the work we were carrying out in our Tesis. They get historical data, looking for to improve the environmental management. They get data from XVIIIth century to early XXTh century. Most of references at Miñano and Madoz are in this work. They get 154 references “pre 1900”. Author found a huge number of historical researches at Vasque Country and Asturias. They also studied several authors that have referenced in our work, such as Seoane, Nores, J.M. Fernández. N. Ruiz de Azua, C. Tejado or Gutiérrez Alba. They have no data for Gato Montés, and other of our references from XIXth century, as are not in referenced studies, they are not quoted. We work with bibliography and directly with historical documents. Therefore, we get new data, which give sense to present paper. We try to prove that is not appropriate to do a map of distribution of animals using long historical period. This is because of the number of animals could change a lot during different historical periods, as It seem to have been happens. Another issue is that we don't think that there is relation between names and species. Names are related with the person who is writting. Furthermore, these biologists think environmental condition in northern Spain are better for Lynx Lynx. We get data about Lynx Lynx at Panticosa (1840) and Neouvielle (1919) at central Pyrenees, where *Lynx pardinus* was quoted at eastern areas (1968). A conservation biology program using both species of linxes could be studied. Maybe It could be interesting for *Lynx pardinus* when “problem animal” are detected, because *Lynx pardinus* seem to be bigger and more aggressive during XIXTh century. Also, Lynx have

⁸³ M.C. SAINT GIRONS, Report sur la Disparition du Lynx en France, J. KRATOCHVIL. *History of the distribution of the Lynx in Europe*. Prirodovedné práce ustavú Československé akademie věd Brne, *Acta sc. Nat. Brno*, 2 (4), 1968, 1-50. See 15-16.

been bringing under a huge pressure when they attack livestock or Fallow deer, as happens at Doñana. Anyway, today, *Lynx pardinus* have a diet based on rabbit. In addition, *Lynx lynx* is a key specie in oceanic forest of Europe so It must be reintroduced where It disappeared due to human action (Cornisa cantábrica and Pyrenees)⁸⁴.

We wish these authors include new references from this paper in their future research. Thus, our aim is to complement this biological research from the point of view of a historian. We tray to help in ecological management as much as we can. We wish to collaborate in conservation programs for *Lynx* sp.

Jiménez, Clavero & Reig-Ferrer (2018) increased the quotes looking for new locations of *Lynx* from North East and East of Spain. As we are looking for data for XIXTh century, we can not use all the research. There are references that we hadn't, such as Fredes (Castellón, 1888. It's said "tigre"). Another references from Catalonia could had been studied before by Maluquer i Sostres, J. 1992. References about biological data are very innovative. Northern Iberian *Lynx* are explained as erratic animals. They also talk about hybridization of *Lynx lynx* and *Lynx pardinus*. Data from that paper are near references of Gato Montés from Madoz.

We think that historic studies should be done in a limited time. Imagine that in the future we have a map with references of *Lynx* at Spain during XXth and XXIth century. The map will show a wide distribution of *Lynx*, and we already know that *Lynx pardinus* was near extinction for long time. This is why we prefer to study *Lynx* sp. at XIXth century, in a geographical limit and a determined historical context. In other hand, we show at present

⁸⁴ M. CLAVERO, M. DELIBES, Using historical accounts to set conservation baselines: the case of *Lynx* species in Spain. *Biodiversity and conservation*, 2013, vol. 22, 8, 1691-1702.

paper that names are not enough to make difference of lynx species in historical documents⁸⁵.

6. Data from Newspapers.

Historic newspapers are a key issue in present paper. We get this locations, dates and names used for Lynxes: Baza Mountains (Granada) (Lobo cerval, Lince, Gato clavo, 1840), Pirineos (Lince 1777, Lobo cerval, 1865), Castellbó- Seo de Urgel (Gato Montés, 1844), Torrelodones, (Seem Gato campesino, lobo cerval o Lince, 1865), Gredos (Pardo, Felis pardinus, gatopardo, lobo cerval, 1865), El Carbayón of Oviedo and concejos of Lena, Mieres; Quirós y Riosa, Morcín and Rivera de Arriba (Pantera, lobo cerval, 1884), El Malillo, Los Pimpollares and la Hache (Lobo cerval, 1887) Orbaiceta. (Lobo cerval o lince, 1895) Cazalla-Constantina (Sevilla)(gato clavo, 1842) Malaga Province (Felis pardinus, Gato clavo, 1875) Sierra del Courel (Lugo), Villalba, San Pedro de Orazo (Pontevedra) (Lobo cerval, serval, tigre. 1861⁸⁶), Torrejón El Rubio (Cáceres) (Lobo cerval, lince, 1886) Casas-Ibañez (Albacete) (Lince o lobo cerval, 1889).

Early XXth century (Hornachuelos), El Pedroso (Sevilla) (Gato cerval, 1910), Guadarrama (Lince, 1904, ¿Gato Montés? 1904).

About “la Hoya de Baza”, which is a valley around Granada, Author referred L. A. Said that in the area there is “lobo cerval, el lince... que en estos pueblos llaman Gato Clavo... mayor que un perro perdiguero”. We should remember that a Spanish pointer dog from early XIXth century was around 66 cm high. Today this dog is much more bigger⁸⁷.

⁸⁵ J. JIMÉNEZ, M. CLAVERO, & A. REIG-FERRER, New old news on the “Lobo cerval” (Lynx lynx?) in NE Spain/ Nuevas referencias antiguas sobre el lobo cerval (¿Lynx lynx?) en el NE de España. *Galemys*, 30, 2018, 31-36.

⁸⁶ Its a resume of Seoane work at *Diario de Pontevedra*, 07/1865, so we always refer the original of Seoane (1861).

⁸⁷ *La Alhambra. Periodico de ciencias, literatura y bellas artes*. Serie 2, Tomo VI, nº 2, 1840, 33.

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In 1777, an alive young Lynx was brought from Pyrenees to Madrid, “Se regaló al rey por el Vizconde de Carbonieres, y se llevó a la Casa de Fieras de Madrid”⁸⁸.

José Caballero kill a “gato cervical” at “hacienda de “Ventas Quemadas” (Today El Pedroso, Sevilla) “se expuso en un local de la calle Reyes Católicos” de Jerez⁸⁹.

At Hacienda “El Águila” (Hornachuelos, Córdoba) is killed “un gato cervical”⁹⁰.

At Doñana, 1840 “Se ven en bastante número, el gato montés, el clavo y el cervical o el lince”⁹¹.

Francisco Antonio Elorza send a fur of gato clavo to Mr. Samuel Widrington/Cook). It was taken at the area of Cazalla-Constantina. It’s said that It is and animal abundant in Sierra Morena Mountains⁹².

Its relevan the article “Valentía de un cazador”, in which is related how Tomaset Cascarrilla, inhabitant of Seo de Urgel, kills a “gato montes” at Castellbó the day 29 of September (1844). We are sure it must be taken as a Lynx⁹³.

It’s referenced a spectacle named “Fiers fight” between a “lobo cervical” and several mastiff dogs. Hence, Lynx sp. could be moved by humans from northern places to southern territories and vice versa⁹⁴.

⁸⁸ *Mercurio histórico y político*, Madrid, Imprenta Real de la Gazeta, 8/1777, 319.

⁸⁹ *El Guadalete: Periódico político y literario*, Año LVI, N° 17548, 09/28/1910, 9.

⁹⁰ *La Publicidad: Diario de avisos, noticias y telegramas, eco fiel de la opinión y verdadero trasmisor de los intereses morales y materiales de Granada y su provincia*, Año XXXIV, N° 9350, 01/24/1914, 3.

⁹¹ *Revista Gaditana. Periódico popular*, 1840, 204.

⁹² *El Corresponsal*, 10/ 10/ 1842, N° 1293, 4.

⁹³ *El imparcial. Diario de política, literatura, comercio e industria*, Año 3, N° 754, 10/13/1844, 3.

⁹⁴ *La España*. Madrid, N° 991, 05/ 27/1851, 4, Also at the newspaper *La Corona*, Barcelona, 31/08/1864.

At 1865, the hunter Mariano Sánchez kill at Torreloz (Madrid) an animal unknown, “un bicho parecido a un gato campesino, tiene bastante cuerpo, opinan que es un lobo cervical o lince, bastante dañino para el Ganado lanar”⁹⁵.

Papernews from 1865 said that Lobo cervical is *Felis Lynx*. It’s living at Pyrenees. It’s said that Bori de Saint-Vincent found a *Felis pardinus* at Gredos⁹⁶.

At 1876, it’s said that Lobo cervical is still at Pyrenees, and it’s more usual in other mountainous regions. The usual lynx at Spain is called “Lince Pardo”. About this animal is said “acomete menos destrozos a los rebaños... hace cruda Guerra a los cervatos, cabras monteses y otros animals parecidos. It referenced other name, pantera riojana, which have spotted fur⁹⁷.

From 1884, An animal is still attacking livestock in concejos of Lena, Mieres; Quirós y Riosa, Morcín and Rivera de Arriba. It was related with a pantera... hyena.... Or lobo cervical. It kill “reses” and eat just the entrails They refers diary El Carbayón of Oviedo⁹⁸.

At 1887, Juan Palacios shoot a Lobo Cervical, somewhere near El Malillo, Los Pimpollares and la Hache, all of them at Ibore Mountains. It’s referenced Naval Moral de la Mata⁹⁹.

At Casa Ibañez (Albacete) hunters killed a huge lince o lobo cervical, that measured 1’75cm¹⁰⁰.

At Esterenzubí (San Sebastian) people wrottes about a wild fiar was found at Orbaiceta. It’s not a wolf. It seems that the animal have a very big head and its color looks like red, with

⁹⁵ *El Pabellón Nacional*, Madrid, 20/05/1865, 8.

⁹⁶ *La Abeja*, Barcelona, 20/ 05/ 1865, 113.

⁹⁷ *Las maravillas y el progreso del siglo*, N° 12, 10/09/1876, 6.

⁹⁸ *La Unión*, Madrid, Año III, N° 848, 25/ 10/ 1884.

⁹⁹ *La Época*, Año XXXIX, N° 12394, 23/01/1887, 2.

¹⁰⁰ *La Vanguardia*, Barcelona, 11/18/ 1889, 2.

marks in the back. It's supposed to be a Lobo cervical or Lince, "de la familia de los felis o gatos"¹⁰¹.

Lynx's size was measured as big game trophy. Animal dead have back legs tied from a stick placed high. Animal is extended and front legs give us maximum size. Hence we can get 1'80cm animals. Lynx's size is compared with dogs. They were much smaller at XIXth century. Perdiguero español and Perro de presa were near 62-68 cm.

7. Remains from archaeological sites.

All reference for Lynx sp at southern Iberia during Holocene are for Lynx pardinus. It occurs at Los Millares (Almería)¹⁰², Los Castillejos (Granada)¹⁰³, Carcaixent (Valencia)¹⁰⁴, even in Nasri sites (XIVth century) at Antequera¹⁰⁵. Special mention should be done for the work of Benito, from 2017, as it shows a relatively important rol of lynx as a totemic specie. There is a significant use of *Lynx* bones related to tool making and decorative elements. Teeth are used as an ornament. His work shows the use of *Lynx Lynx* at northern Spain and Lynx pardinus at southern Spain and Portugal¹⁰⁶. We can gather a huge set of data,

¹⁰¹ *El Correo Español. Diario Tradicionalista*, Año VIII, N° 2195, 28/12/1895.

¹⁰² E. NAVAS, J.A. ESQUIVEL & F. MOLINA, Butchering patterns and spatial distribution of faunal animal remains consumed at the Los Millares chalcolithic settlement (Santa Fe de Mondújar, Almería, Spain), *Oxford Journal of Archaeology*, 27(4), 2008, 325-339.

¹⁰³ M. ALTAMIRANO GARCÍA, Not only bones. Hard animal tissues as a source of raw material in 3rd millenium BC south-eastern Iberia, *Menga: Revista de prehistoria de Andalucía*, 5, 2014, 43-67.

¹⁰⁴ O. GARCÍA PUCHOL, F. COTINO VILLA, C. MIRET ESTRUCH, J. L. PASCUAL BENITO, S. B. MCCLURE, L. MOLINA BALAGUER, & B. CULLETON, Cavidades de uso funerario durante el Neolítico final/Calcolítico en el territorio valenciano: trabajos arqueológicos en Avenc dels Dos Forats o Cova del Monedero (Carcaixent, Valencia), *Archivo de Prehistoria Levantina*, 2010, 28.

¹⁰⁵ M. ALONSO VALLADARES & J. A. GARRIDO GARCÍA, La explotación de los recursos cárnicos en la frontera del Reino Nazarí de Granada.: Un estudio de caso en el yacimiento de La Moraleda (Antequera, Málaga), *Revista del Centro de Estudios Históricos de Granada y su Reino*, (27), 2015, 21-39.

¹⁰⁶ J. L. PASCUAL BENITO, Industria ósea sobre huesos y dientes de lince en la prehistoria de la Península Ibérica, *In Interaccions entre felins i humans: homenatge a Innocenci Sarrión Montañana*, Museu de Prehistòria de València, 2017, 189-212.

but is not our aim. We use data from bibliography. It shows that *Lynx lynx* and *Lynx pardinus* were living at same places (Northern Spain) during long time. *Lynx pardinus* is supposed to have wider distribution, even in France, during hot stages. At glacial stage, it can be placed to Southern Iberian Peninsula. It have been proved that around Gibraltar Strait there was an ecological refuge from middle Pleistocene even during glacial stages¹⁰⁷.

Holocene remains of southern archaeological sites are linked with *Lynx pardinus*, hence we have been looking for bibliography about coexistence of *Lynx lynx* and *Lynx pardinus* during Holocene. We found data from northern Spain at the work Rodríguez Varela *et alii* 2016¹⁰⁸.

Northern Spain is usually rich in *Lynx* sp. remains at archaeological sites, mainly for Pleistocene. For Holocene, *Lynx pardinus* remains at archaeological sites of northern Spain are founds in Urratxa III (Vizcaya, Spain), Chaves (Huesca, Spain), Portalón (Burgos, Spain), Peña del Moro (Barcelona, Spain), Balma de l'Espluga (Gerona, Spain) and Can Sadurní (Barcelona, Spain)¹⁰⁹.

Rodríguez Varela *et alii* (2016) give us a huge set of data about *Lynx* *Lynx*, which includes different references at northern peninsula and very wide set of datation along the holocene. They think Eurasian *lynx* came to Spain sometime around Younger Dryas event. They quote Coulet des Roches (Pyrenees, France), Cueva de los Cinchos, (Asturias, Spain), Pozu'del Lince in Sierra

¹⁰⁷ J. S. CARRIÓN, C. FINLAYSON, S. FERNÁNDEZ, G. FINLAYSON, E. ALLUÉ, J. A. LÓPEZ-SÁEZ, & P. GONZÁLEZ-SAMPÉRIZ, A coastal reservoir of biodiversity for Upper Pleistocene human populations: palaeoecological investigations in Gorham's Cave (Gibraltar) in the context of the Iberian Peninsula, *Quaternary Science Reviews*, 27(23-24), 2008, 2118-2135.

¹⁰⁸ R. RODRÍGUEZ -VARELA, N. GARCÍA, C. NORES, D. ALVAREZ-LAO, R. BARNETT, J. L. ARSUAGA & C. VALDIOSERA, Ancient DNA reveals past existence of Eurasian lynx in Spain, *Journal of Zoology* 2016, vol. 298, no 2, The Zoological Society of London, 2016, 94-102.

¹⁰⁹ *Idem*, 98-101.

de Sueve (Asturias, Spain), Rascaño (Cantabria, Spain), Serpenteko (Navarra, Spain) y Sima Pagolusieta (Vizcaya, Spain)¹¹⁰.

8. New data about lynx from Historical Dictionaries from XIXth century.

We use three works that are key sources for environmental studies os Spain during XIXTh century. First one, Real Academia de la Historia (1802) give us 18 references of felidae that may well be Lynx sp.¹¹¹.

Second one, Miñano (1826), where we find 39 references for felidae, 36 could be Lynx sp.¹¹².

The last one, but first in relevance, is usually called Diccionario Madoz. Madoz, (1845). Here we find 73 references, all of them, but three, could be Lynx sp. Just in Dictionaries we have got 124 quotes about Lynx sp.¹¹³.

Some of the data are not new. They have been referenced in bibliography shown before. Anyway, here we add references that are not in bibliography. It happens with usual names (Lince, lobo cervical, gato cervical, tigre...) and non usual in bibliography, meanly gato montés.

Data for dictionaries are resumed in tables.

¹¹⁰ R. RODRÍGUEZ -VARELA, N. GARCÍA, C. NORES, D. ALVAREZ-LAO, R. BARNETT, J. L. ARSUAGA & C. VALDIOSERA, Ancient DNA..., RadioCarbon Dates. Years BP. Coulet des Roches (Pyrenees, France) 8171-8000, Coulet des Roches (Pyrenees, France), 7564-7431, Cueva de los Cinchos (Asturias, Spain) 1864-1639, Pozu'l Lince in Sierra de Sueve (Asturias, Spain) 4829-4581, Rascaño (Cantabria, Spain) 12082-11753, Serpenteko (Navarra, Spain) four remains . Trthe dates: 10696-10443, 3032-2855 and 505-319 (Between XVth and XVIIth century) and Sima Pagolusieta (Vizcaya, Spain), 3067-2878.

¹¹¹ REAL ACADEMIA DE LA HISTORIA, *Diccionario Geográfico Histórico de España, por la Real Academia de la Historia*. Imp. Academia. Madrid 1802.

¹¹² S. MIÑANO Y BEDOYA, *Diccionario Geográfico y Estadístico de España y Portugal*. Im. Pierad – Peralta. Madrid 1826.

¹¹³ P. MADOZ, *Diccionario Geográfico- Estadístico- Histórico de España y sus posesiones de ultramar*, Imp. Madoz y Sagasti. Madrid 1854.

Real Academia de la Historia (1802). (See resume at Table 1); Miñano (1826). (See resume at table 2); Madoz (1845). (See Resume in Table 3).

9. Ecohistory: how to improve knowledge about Lynx s. at Spain.

Historical studies should be taken with three key issues. First one, it must be placed in a geographical territory. Second one, it must be done in a defined space of time. Third one, data have no sense without historical context.

Density of data in a region is related with number of academical research, knowledge of inhabitants, aim of academical studies, etc. Jaén, where Lynx have strongest population today, have no data from historical times, hence Information is scarced. Data about environment is a key issue for biology of conservation. Madoz and Miñano give us data about the forest and human activities in the area. Maybe It's a key issue for future studies. We could understand what happened in the environment where Lynx was living and today It's extinct.

About Lynx's preys, historical data demonstrate there are environmental changes in northern región. Red deer was extremely rare. Even if there were Red deer, usual size was much smaller than today. Before the law of Isabel II, was very unusual the management of forest for increase Big Game Prizes. This is why the size of animals have been increased again and again from early XXTh century. Red deer and Wild boar seems to be much more usual today than at the end of XIXth century. Roe deer was widely decreased, and Capra pirenaica and most of the Chamois population becomes extinct in several areas. There are huge changes in landscape and human activities in northern areas describes in Miñano, and Madoz. Also, there are places where actual environment is better preserved today than in Madoz times. Other Issue is decreasing of sheep and goats. Martinez Reguera says that at 1870 Spain have around 22500000 sheepes

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and 4500000 goats. Today, there are 15800000 sheep and 2800000 goats.

We have no data about the ecology of Lynx and Wolf living in the same area. It was the usual issue at XIXth century Spain, even in the southern región of Andalusia and Extremadura. The northern forest were the home of Brown bear, Iberian Wolf and Lynx Sp. (*Lynx Lynx* and *Lynx pardinus*). Most of references of Lynx are connected with Wolf.

The name used for design Lynx is linked with, in one hand, the studies of the writer, and in the other hand, with regional designation for the animal, which are sometimes very located. We don't have data that give us doubtless quotes about what kind of lynx is referenced. Even zoologist from XIXth century have confusing information. Differences between Lynx Lynx and *Lynx pardinus* were not widely recognized. It happens in Elliot, Cabrera, or Seoane.

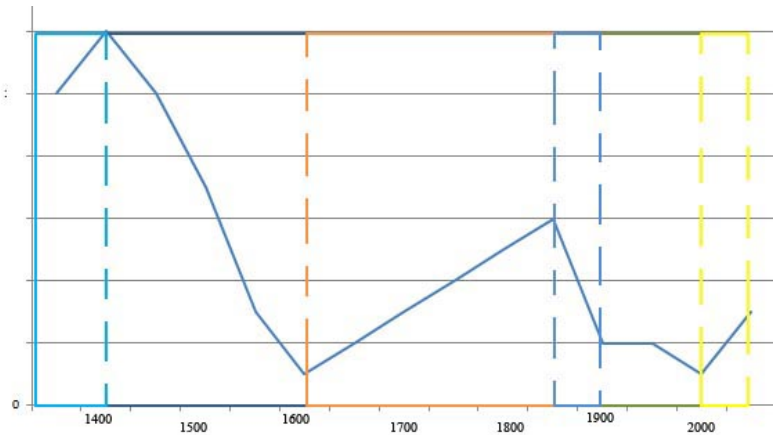
Each school of Biology use to have a focus of studies. Aragon naturalists were a huge account of scientific researchers that were working at issues as American fauna or, mainly, in botanic research. It's clear there is absence of data about Lynx sp. for Aragon. Also, It is obvious that numbers of botanical researches from Aragón are huge if they are compared with other territories. (Monserrat Recover, Pedro. 1980). Perhaps, nobody studied the Lynx at Aragón. Maybe, animals were very scarce since the beginning XVIIth century due to harassment made by furriers from Zaragoza¹¹⁴.

Historical documents can provide us with data to establish periods of regression or increase in fauna population. The reference is the paper of Molinier & Molinier – Meyer, (1981). We can see how the wolves decrease at 1790-1801, there was a huge

¹¹⁴ P. MONSERRAT RECOVER, Estado Actual de los estudios sobre flora de Aragón, *In Flora y fauna aragonesas, II Jornadas sobre el estado actual de los estudios sobre Aragón*, Huesca, 19-21 Diciembre 1979, Vol. II, Zaragoza, 1980, 879-896.

increase between 1809-1818, which is related with the Napoleonic wars. Also, the model of “border effect”, in the text is called “fenomene frontier” that increased the number of wolf in this kind of territories of France, where human pressure was lower and livestock were usual economical activity. It could be useful for studies about Lynx at Spain¹¹⁵.

We can do the following proposal of size of Lynx population in Spain over time from XIVth century, according with historical context:



Graphic 1. Relative abundance of Lynx 1350-2020 at Spain.

Abundance of Lynxes can be studied in historical context of each period. Therefore, we don't have absolute number of individuals, but we can say if social conditions and environment was good or bad for Lynx sp' population.

First stage; clear blue. It shows potential growth of population of Linx sp at XIVth century. At this time human population decreased because of the Bubonic Plague, climatic

¹¹⁵ A. MOLINIER, N. MOLINIER-MEYER, *Environnement et Historie: les loups et l'homme en France*, *Revue d'histoire moderne et contemporaine*, tome 28, N° 2, Avril juin 1981, 1981, 225-245. See 238.

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changes depressed peasants because of the famine. Losses of crops were usual, so most of population migrates to urban centers. Hence, environmental condition becomes better, human pressure decreased and forest was enlarged widely. The territory were full of borderlines, were forest and “dehesa” were usual economical activities. Livestocks were prevalent. A huge number of sheep was widely distribute in Castille because of the action of “Honrado Consejo de la Mesta”. The long movement of this livestock cross Spain from Extremadura to Asturias. It could be a key issue to understand presence on *Lynx* sp. at Northern mountains.

Second stage is marked in black. From 1400 to 1600. There is a progressive decrease in *Lynx* population, even at the point of a near extinction situation. It can be related with increasing of population and farming activities, mainly since 1492, which is the end of war against Kingdom of Granada. For this reason, deforestation and human pressure were increased. Borderline disappeared at this time in most of territory. There was direct harassment of *Lynxes* due to the value of its fur. Furs of *Lynxes* were widely sold in Zaragoza in XVth century. It can be useful to understand smaller abundance of *Lynx* sp. in Ebro basin and Aragon. XVIth century became the stage were *Lynx* fur became an extraordinary valuable object. There are huge number of portrait from XVIth century, where kings and aristocracy people are wearing *Lynx* fur clothes. We think there were a huge pursuit of *Lynxes* and it could explains why *Lynx* is very scarce in XVIIth century¹¹⁶.

¹¹⁶ From Spain: Museo del Prado (Spain) N° P001136, Coello, El Príncipe Don Carlos. 1555-1559. Madrid.; Museo del Prado (Spain) N° P001140, ¿Coello? ¿Sofonisba Anguissola?, Dama desconocida, 1567-1570. Madrid.; Museo del Prado (Spain) N° P001339, Yañez de la Almedina, San Damián, circa 1510; Museo del Prado (Spain) N° P002918, Bartolome González. Felipe III Rey de España, sedente. Circa 1615. Madrid.; Pollok House art's collection (Glasgow, Scotland, UK). Lady in a fur wrap, Coello? Sofonisba Anguissola?, 1577-1579, Made near Madrid.; National gallery, Washington, Michel Sittow, Portrait of Diego de Guevara, 1515. Portrait made in

Third stage is marked in orange. From 1600 to 1850. Its a period that begins with another climate crisis for farmers. Furthermore, the Spanish Empire put pressure on the population, as it was fighting in successive wars around the world. Human population declined or growth slows. Wars occur in the Iberian Península, mainly at 1700-1705, Napoleonic wars (Spanish Independence war 1808-1814). Revolutionary Period (1820-1823) and Carlist wars through XIXth century, mainly the periods 1833-1840, 1846-1849, 1872-1875. Hence, the field becomes a dangerous place, and the farmer activities decreased during war stages. In this context, Lynxes could increase, as It happens in France with the wolf. At XVIIIth century farmland increased, but at the beginning it could be beneficial for Lynx sp because ecosystem was enriched with mosaic-like landscapes. Lynx references progressively increased trough this stage. They are very

Gante.; Real Monasterio de El Escorial, Seisenegger, Portrait of Charles V, early XVIth. It's supposed to be made in Spain. From aoutside of Spain: Museo del Prado (Spain) N° P000279, Parmigianino, Pedro María Rossi, conde de San Segundo, 1535-1538; Museo del Prado (Spain) N° P000451, Anónimo (copia de un Tiziano). Marquesa de Mantua, XVI-XVII Original of 1534-36. At Viena: Kunsthistorisches Museum; Museo del Prado (Spain) N° Museo del Prado (Spain) N° P002132, Rembrandt, Judith en el banquete de Holofernes, 1634; Pinacoteca di Brera, Milán, Italy. Moroni, Portrait of G. Navagero, 1565; Portrait of Girolamo Fracastoro, Titian, National Gallery of Arts. London, UK.; National Gallery of Arts. London, UK. NG 299, Alessandro Bomvicino, Il Moretto, Portrait of a Young man. 1540-1545; Galleria Pallatina, Florence. Veronese. Portrait of a Gentleman in a fur. 1550-1560; The Frick Collection; Legado de Henry Clay Frick, Portrait of a man with red cap. Tiziano. 1510; Kunsthistorisches Museum, Viena: N° 6079, Joos van Cleve, Eleanora, Queen of France, ca. 1530. Oleo sobre roble; Hans Holbein el Joven (alemán, 1497-1543). Los embajadores , 1533. Óleo sobre roble; 207 x 209,5 cm. Londres: National Gallery, NG1314; Artista desconocido (anglo-holandés). Thomas Wentworth, primer barón Wentworth , ca. 1547-50. Óleo sobre tabla; 77,1 x 73,4 cm (30 3/8 x 28 7/8 pulgadas). Londres: National Portrait Gallery, NPG 1851; Moretto da Brescia (italiano, 1498-1554). Retrato del conde Fortunato Martinengo , ca. 1540-45. Óleo sobre lienzo; 114 x 94,4 cm. Londres: National Gallery, NG299; William Scrots (activo 1537-53). Eduardo VI (1537-53) , ca. 1546-47. Óleo sobre tabla; 107,2 x 82 cm. Castillo de Windsor, RCIN 404441; Paolo Veronese (italiano, 1528-1588). Retrato del conde Giuseppe da Porto con su hijo, Adriano , ca. 1555. Óleo sobre lienzo; 247 x 133 cm. Florencia: Galería de los Uffizi, inv. Contini Bonacossi no. 16.

scarce at XVIIth century, frequent for XVIIIth century and much more usual by the end of this century and the beginning of XIXth century.

Fourth stage is marked in dark blue. From 1850 to 1900. It shows a huge decrease in Lynx population. It was the stage of development of Industrial Revolution in Spain. Railways were widely spread through territory. Mining of coal and Iron, siderurgy and farming change all territories in the north. Southern region around Huelva, Almería y Murcia were huge mining centres. Villages became towns in Asturias, Cantabria and Vasque Country. In the coast, towns became cities. Population growth a lot near industrial areas. Inland territories lost inhabitants. Deforestation was increased as have never seen the country before. Public lands were sold by “desamortizations”, so a huge number of dehesa and forest became agricultural land.

Later periods for XXth century are well known, so we don't include it in our analyzes.

10. Conclusions

Historical data about animal need a collaborative work between historians and biologist. Research from biologist can be unable to find data from historical documents. Biological research made by historian could have big mistakes about Ecology. In any case, biologist has done most of historical researches about fauna. Historians with a good knowledge of ecology are a need. The data should be focuses from de Ecohistory, which works with a mixture of Geography, History, Archaeology and Ecology.

Method for historic studies of fauna can be taken from our paper. We made research using Laws, Journals, Administrative documents, local data from Actas plenarias, Prices, Trip books, ancient Environmental works, Dictionaries, Geographical research, biological research, papernews, archaeological research, etc.

We get more than 300 references for *Lynx*, near 110 references in bibliography and old paper news, 124 references from historic dictionaries, 24 references from archaeological remains from Holocene. Hence 254 are references for *Lynx* presence, Around 200 just for XIXth century.

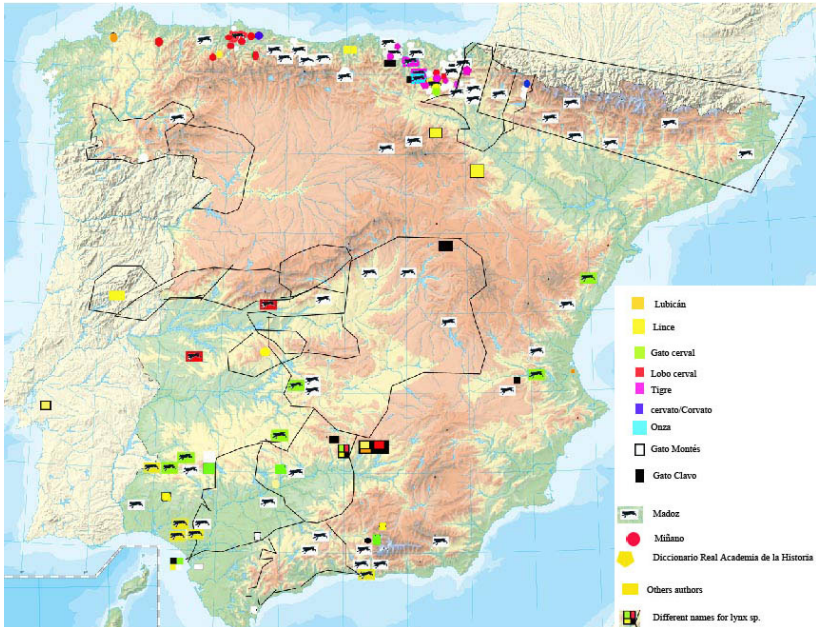


Figure 1. *Lynx* references by name and sources. Repeat locatios are omitted. Also Newspaper data, that is prepared for a future paper. Lines are around areas where documents say there are *Lynxes*, as Pirenees.

We find a concentration of data in Vasque Country, as Clavero and Delibes have done before. Also there are concentration at Cantabria, Asturias and a few places of Andalusia, as Doñana, Aracena mountains, Granada and Cordoba. Granada seems to be a refuge of *Lynx* quite bad known. It's unusual the scarce references at Tájus basin. We though that Toledo and Caceres should have the core of references but It doesn't happens. We understand that It is linked

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with no biological studies in these areas. Pyrenees have a lot of references, but not too much references from XIXth century. We think that It's used Gato montes widely in this mountains. Pre-Pyrenees seems to be a good place for *Lynx* sp.

About names, the wider number is in Vasque Country. It's a place where several names are used, but It is the place where "tigre" is most used. At Cantabria, absence of data should be taken as consequence of no admission of Gato montes for *Lynx*. This word is widely used. Lince occurs in Cantabria at early XXth century at Valle de Buelna. Consequently, *Lynxes* of northern Spain were located from Galicia to Catalonia. Asturias has a general use of Lobo cerval and frequent use of Gato Montés. Dictionaries give us reference of Lubican just in Galicia. We show several references for this area, with lobo cerval and Gato Montés. Gato cerval and Gato Clavo are usual in Andalusia, but it occurs in Comunitat Valenciana and even in Vasque country. We should remember older references at this territory, from 1572 Bernedo, "gato cerbal", 1572 Santa Cruz de Campezo, "gato cerbal", 1597.

Lobo cerval occurs from north to south. Also it happens with Lince. So differences in naming are not related with species, but with the writer. La Compañía Guipuzcuana de Caracas is the origin of La Compañía de Filipinas. Last one have "privilegios/monopoly" of trade with Nueva España, today Mexico and United States. These two institutions for trade have deep root in the north, and It could be linked with the export of the name "Gato Montes" for "*Lynx rufus*" to America. It's a non native designation for *lynx*. It must be related with northern Spaniards. In addition, It could explain use of word "Tigre" for the spotted felidae, which is an Americanism brought by "indianos". Nore understood Tiguer is a word that came from America. We think he is right.

Every so often *Lynx* is quoted in different ways. Occasionally in administrative divisions: (Provinces of Sevilla,

Guipúzcoa, Córdoba, Málaga, Zamora, Segovia, old kingdom of Navarre, etc.). Also it is referred in “partido judicial” (de Almadén, partido judicial de Motril) and others in a region or mountainous feature. (Sierra Morena, Encartaciones, Hoya de Baza, Pyrenees, Gredos). There are no data for long extensions as Duero basin and south of Aragón.

Newspaper data show *Lynx* sp as follows: Baza Mountains (Granada) (Lobo cerval, Lince, Gato clavo, 1840), Pirineos (Lince 1777, Lobo cerval, 1865), Castellbó- Seo de Urgel (Gato Montés, 1844), Torreldones, (Seem Gato campesino, lobo cerval o Lince, 1865), Gredos (Pardo, *Felis pardinus*, gatopardo, lobo cerval, 1865), El Carbayón of Oviedo and concejos of Lena, Mieres; Quirós y Riosa, Morcín and Rivera de Arriba (Pantera, lobo cerval, 1884), Lobo Cerval, El Malillo, Los Pimpollares and la Hache (Lobo cerval, 1887) Orbaiceta. (Lobo cerval o lince, 1895) Cazalla- Constantina (Sevilla)(gato clavo, 1842) Malaga Province (*Felis pardinus*, Gato clavo, 1875) Sierra del Courel (Lugo), Villalba, San Pedro de Orazo (Pontevedra) (Lobo cerval, serval, tigre. 1861¹¹⁷), Torrejón El Rubio (Los Ibores) (Lobo cerval, lince, 1886) Casas-Ibañez (Albacete) (Lince o lobo cerval, 1889) Early XX century (Hornachuelos), El Pedroso (Sevilla) (Gato cerval, 1910), Guadarrama (Lince, 1904, ¿Gato Montés? 1904)

We think that our work could be useful in conservative biology. Numerous of new location of *Lynx* have been quoted. Data about ecology have been collected. Some of the references came from northern Spain, where historical documents made no differences between *Lynx* *Lynx* and *Lynx pardinus*. Size and weight could be a help. Both species could be living in these territories, if we use archaeological data.

¹¹⁷ Its a resume of Seoane work at Diario de Pontevedra, so we always refer the original of Seoane.

Maybe, we should take as true that there was a more aggressive behaviour of Lynx 200 years ago. Human have kill these aggressive animals, as could happen in Doñana. We have data that say that owners of Doñana kill most aggressive lynx. When Lynx kill young Fallow deer, there were hunts to kill that lynx¹¹⁸.

Information that we have now for Lynx behaviour and ecology, can be different from It behaviour and ecology at XIXTh century. It also happens with environment linked with Lynx. 50 years ago, most of Lynxes at Spain were placed at Doñana, a lowland plain with pine trees forest, same *Quercus suber* and a huge wetland. Most of data we get tell us about middle mountains with mixed forest. There are different ecosystem that make us to think about Lynxes in high mountains with coniferous forest near *Quercus rotundifolia* of northern areas (Ataun, Urdalaitz, Arno-Aranerrika, Urola, Anduts..). Most of quotes came from livestock areas. It usual Agropastoral system of Dehesa linked with *Quercus suber* or *Quercus rotundifolia*. The main difference between the historic study and actual data is that Lynx were living at places where rabbits were not abundant. At these northern areas there were hares and roe deer, and sometimes fallow deer. Many references about lynxes are connect with quotes of Wolf. Actually, we have no data about this ecosystem in Spain. Sometimes Linx is quoted alone. It can be related with reduced number of wolf and with value given to Felidae as a Big Game Trophy. It happens in Galicia, Sierra de San Pedro (Caceres), province of Segovia and Cordoba.

¹¹⁸ G. MONFORT, *Retrato de una tierra...*, 142. Picture of Don Mauricio Gonzales with a death lynx. We can read “algunos de estos animales deben de ser eliminados cuando matan demasiados gabatos”. The idea is repeated in picture of a Young fallow deer at page 123. We can read “Por desgracia, los lince matan muchos en mayo y junio.”

About aggressive animals, Garrote, G. *et alii* 2013 made the first study about aggressive behaviour, non usual in Iberian lynx¹¹⁹. They said that conflict with farmers appear in Andujar- Cardena, where Lynx increased because of conservation program. There were 31 attacks on birds (Chicken, Turkey, doves) and 9 attacks on lambs.

They refer the Linell theory of “problem animal”, that explains that most of the attacks on livestock are related with isolated animal that develops unusual behaviour. A single individual radio tracked made six attacks. A total of “seven different Iberian lynx (four adult males, two subadult males, and one subadult female) were identified attacking coops. These individuals could be identified by means of radio tracking, photo trapping, or direct observation inside the coops”.

Historical data show that there is indirect selection on animal behaviour made by humans. Where lynx attacks livestock animals, they were pursued until they were eliminated. In Doñana, when lynx attacked young fallow deer or red deer, the owner started hunting in the area for kill the “guilty” Lynx. Most aggressive animals were disappeared. Studies on Lynx behaviour were impossible to be taken out of natural reserve of Doñana where owners made a selective execution. Just rabbit eater animals were admitted.

At the moment, all the animals that have been taken from pictures and fur analysis of lynx in Spain and Portugal are related with Iberian Lynx, (*Lynx pardinus*). Eurasian Lynx (*Lynx lynx*) are not usually reported at the area, even if isolated individual could be seen in historical records at western Pyrenees. Anyhow, northern mountains are proved to have population of *Lynx lynx*

¹¹⁹ G GARROTE, G. LÓPEZ, J.M., GIL, E. ROJAS, M. RUIZ, J. BUENO SEGURA, S. LILLO, J. RODRIGUEZ-SILES, J. MARTÍN, J. PÉREZ, M. GARCIA-TARDIO, G. VALENZUELA, M. SIMON, *Human–felid conflict as a further handicap to the conservation of the critically endangered Iberian lynx. European Journal of Wildlife Research* 2013.

and *lynx pardinus* at the same period. Doubtless, Pyrenees and Picos de Europa are excellent location for Lynx Lynx.

We understand that XIXth century data about lynx can be used in diversification of conservation strategies. Aggressive animals can be placed in northern areas, where big sized preys are more frequent and lynx was widely distributed. Reintroduction centres for Iberian Lynx can work at Huesca, Lleida or Asturias. Another historical area is Galicia- Leon. Aggressive individuals will be increased on hunting of *Capreolus capreolus*, *Dama dama* and *Ovis egmelini*. Even *Rupicapra pirenaica* and *Capra pyrenaica* can be taken as preys. It seems that it was usual at XIXth century, but not today. Most of *Lynx pardinus* have dependence of rabbit. No studies have been done yet. It is in biological work as DELIBES, M., RODRIGUEZ, A., and FERRERAS, P. (2000) said that “Rabbits consistently account for 80-100% of the consumed biomass in the lynx diet... Other vertebrates, including rodents, European hare (*Lepus granatensis*), red-legged partridge (*Alectoris rufa*), ducks, and geese (*Anser anser*) can be regularly killed and eaten in some areas and/or seasons, but they always contribute little to the lynx diet. Several ungulate species can occasionally be taken, especially in winter. Ungulate prey includes juvenile red (*Cervus elaphus*) and fallow deer (*Dama dama*), and mouflon (*Ovis musimon*). Roe deer (*Capreolus capreolus*) has not been reported as a prey, perhaps just because it is absent in the areas where the lynx diet has been studied”¹²⁰.

Anyway, there is reference of ungulates predation. In Delibes de Castro, M. (1980) we can read 16 hunted preys, 11 were cervidae. 8 of them are *Dama dama*, 3 of them *Cervus elaphus*. Weigh of preys is between 20, 22, 23 Kg. for *Cervus*, Fallow deer were selected in two clear size, Young ones between 17 and 25

¹²⁰ M. DELIBES, A. RODRIGUEZ & P. FERRERAS, Action Plan for the Conservation of the Iberian Lynx (*Lynx pardinus*) in Europe. Bern Convention. *Nature and Environment*, 111. Council of Europe Publishing 2000, 18.

Kg, (5 in total) and adult animal, which weight were 36'75, 38'25, 45 kg, (three in total)¹²¹.

Our proposal of historic distribution shows similarities with the 1960 data¹²². Moreover, in northern Spain It is similar to the work of Peñin Agra, V. (2018). She found molecular data that show presence of *Lynx Lynx* and *Lynx pardinus* in northern Spain for Holocene. It is relevant the data for Pardel Lynx at Galicia in an area near the reference in Madoz¹²³.

Lynxes can improve their chances of survival by diversifying their habitat, improving the connection between populations, and taking into account the elements of ecohistory that have been numbered in this study.

¹²¹ M. DELIBES DE CASTRO, El lince ibérico: ecología y comportamiento alimenticios en el Coto Doñana. *Acta vertebrata* ,7. Consejo Superior de Investigaciones Científicas. Estación Biológica de Doñana. Sevilla 1980. About deer as preys at pp. 124-126.

¹²²<http://www.iberlince.eu/index.php/esp/lince-iberico-esp/distribucion#.XkwXdbiun58>

¹²³https://ruc.udc.es/dspace/bitstream/handle/2183/21171/Pe%C3%B1inAgra_Virginia_TFG_2018.pdf?sequence=2&isAllowed=y See p. 20.

Table 1. Felidae that can be taken as *Lynx* sp. Diccionario Geográfico 1802.

Diccionario Geográfico-1802	Cita destacada	Referencia geográfica	Provincia	Referencia Pág.
Gato Montés		Leníz,	Guipuzcoa	Pág 432
Gato Montés		Aramayona	Álava,	Pág 85
Gato Montés	“Caza de ... corzos , lobos , zorros , texones , urones silvestres , gatos monteses y cerbales de suma fiereza , comadrejas”	Salvatierra	Álava.	Pág. 289.
Gato Montés	“animals fieros, gatos monteses y lobos”	Ataún,	Guipuzcoa,	Pág 129,
Gato Montés		Lazcano, en Aretía,	Guipuzcoa.	Pág 425
Gato Montés		Regil, En Sayaz	Guipuzcoa,	Pág. 269
Gato Montés		Roncal,	Navarra.	Pág 277
Gato Montés	“hallándose en sus montes lobos , gatos monteses y otras fieras”	Trucios, en las Encartaciones	Vizcaya.	Pág. 389
Gato Montés	“hállanse en los mismos zorros , jabalíes y gatos	Usurbil	Guipuzcoa.	Pág. 422.

	monteses.”			
Gato Montés	“jabalíes , zorros , garduños , gatos monteses, herizos , comadreja y muchas liebres,...”	Munguía, prov..	Vizcaya.	Pág 44., no puede especificarse
Gato cerbal*	“Caza de ... corzos , lobos , zorros , texones , urones silvestres , gatos monteses y cervales de suma fiereza , comadreja”	Salvatierra	Álava.	Pág. 289.
Lobo cervical	“Lobos comunes y cervales, gatos monteses y de algalia,...”	Geografía de Navarra. (About Province	de Navarra	Pág 63.
Lobo cervical	“Lobos comunes y cervales, jabalíes, corzos, tasugos, zorros, garduñas, gatos monteses, liebres y comadreja	Oñate.	Guipuzcoa	Pág 195.
Tigre	Caza de muchos	Cegama	Guipuzcoa.	Pág 206.

	animals, muchos lobos y tal cual Tigre,			
Tigre	. “Abunda la caza mayor y menor,” “y tal qual tigre que se deja ver de tarde en tarde”,	Escoriaza,	Guipuzcoa	Pág 260.
Tigre	“tigres”	Encartaciones,		Pág 247.
Tigre	“se han visto tambien algunos pequeños tigres y otras fieras no communes en el país”.	Gorbea/ Gorbeya.	Álava/ Vizcaya	Pág 306.
Lobo cerbal	“la caza mayor consiste en lobos comunes y cerbales , osos y jabalíes, corzos, cabras, gatos monteses, zorros tejones, liebres muy grandes, garduñas...”	Pirineos:	Solo atañe a Navarra	Pág. 257.

**Table 2: Diccionario Geográfico y Estadístico de España y Portugal”,
By Miñano y Bedoya, S. From 1826**

Municipio	Provincia	Lema	Otros datos biológicos	
Aldaba	Guipúzcoa	Gatos monteses	Se crían jabalíes, zorros, corzos y gatos monteses.	
Ataún	Guipuzcoa	Gatos monteses	Gran multitud de aves y animales fieros, gatos monteses, lobos, corzos, jabalíes, liebres, raposos, garduñas, mucharros y otras.	
Avilés	Asturias	Gatos monteses	Liebres, algunos jabalíes y corzos, de los dañinos, lobos, zorros, melandros o tejones, hurones, comadrejas, gatos monteses, martas, fuinas, erizos y nutrias.	
Beba Julian Muros	(San de) Provincia de Santiago Coruña)	de Gatos monteses	Algunos animales bravos, como gatos	Monte Pindo

			monteses y otros.	
Guadix (Dehesa de Becerra)	Granada	Gatos, Gato de clavo.	“Hay una especie de gatos del tamaño de un perro pachón que llaman de Clavo; tienen la piel pintada como el tigre, la cabeza con melenas y una como toca de lechuga, que prende desde las orejas, y estas con zarcillo de pelo, lanas al cuello y cola corta como cuatro dedos”	Descripción del linco.
Castilla Nueva	la	Gatos monteses	Bastante mayor, venados y paletos (gamos) jabalíes, gatos monteses, lobos, liebres, pavos y todo género de volatería y caza menor en abundancia.	La (caza) menor ha disminuido mucho con los grandes rompimientos de terreno que se hicieron en las inmediaciones de los Sitios reales durante la ausencia de SM (Guerra Independenci

				a) a los principios de su reinado.
Cabrales	Asturias	Cervatos, gatos monteses.	Muchas bestias fieras, osos, lobos, cervatos, zorras, varias especies de gatos monteses muy perjudiciales a los ganados mayores y menores. En las peñas más altas rebezos... en los valles de hallan corzos y una especie de cabra montés parecida a las comunes.. que llaman en el país mueyos.	
Concejo de Caso. Campo, Orle, Tarna, Sobrecastello, Pendones, Braeres, Tanes, Coballes, Caleado y Tozo.	Asturias	Lobo cervical	Abunda en osos, jabalíes, lobos comunes y algún otro cervical, en corzos, robezos, tejones, zorros y alguna liebre.	
Cerain	Guipuzcua	Gato Montés	En todos sus montes se	Tomo III, pág. 57.

				crían liebres, raposos, gatos monteses y hay pasto...		
Collera (San Martín de)	Asturias	Gato montés	Lobos, jabalíes, zorros, algún corzo, liebres, gatos monteses, y melandros que en Castilla llaman Tejones	Tomo III, pág. 150		
Cegama	Guipuzcoa	tigre	Perdices y liebres en abundancia, tordos, malvises, y arrendajos, corzos, jabalíes lobos y tal cual tigre	Tomo III, pág 44.		
Encartaciones	Vizcaya	Tigre	Algunos jabalíes, tigres, zorros y otros animales nocivos	Tomo III, pág 345.		
Santa María de Gestoso y Valle de Doresja.	Coruña(Antigua provincia de Betanzos)	Lubican	Lobos... otros animales de menos cuerpo e igualmente feroces, llamados lubicanes	El lanar y cabrío por otros animales de menos cuerpo e igualmente feroces, llamados lubicanes, que trepan por los		

				árboles y a manera de gatos monteses se esconden entre sus ramas, Tomo IV, pág. 309.
Gorbea	Entre Álava y Vizcaya	Tigres	Algunos pequeños tigres no comunes en el país	Tomo IV pág. 331.
Guadalupe (Sierras de)	Caceres	lince	Bosques de castaños que sirven de asilo a los ciervos, a los corzos, a los jabalíes y a los lincees.	Tomo IV, pág 385.
Iranzu	Guipuzcoa	Gato montes	Raposos, gatos y cabras monteses, garduñas y jabalíes	Tomo V, pág. 63.
Langreo Concejo de. (Sama, Bliea, San Martín del Rey Aurelio, San Andrés, Cíaño, Turiellos, Barros, Barros, Lada y Riaño)	Asturias	Cervales, lobo cerval.	Su caza perdices, arceas, palomos, torcaces, codornices, jabalíes, corzos, lobos, zorros y lobos que llaman cervales.	
Morcín	Asturias	Gato montés, lobo	De animales montaraces hay taposas,	Tomo VI, pág. 143.

		cerval	tejones y garduñas, algunos gatos monteses, lobos comunes y cervales, cuyas pieles, por sus manchas, se parecen mucho a la del tigre,		
Munguía	Vizcaya	Gatos monteses	Algunos jabalíes, zorros, garduños, gatos monteses, erizos, comadrejas, y muchas liebres.	Posible felis silvestris Tomo VI, pág. 181.	
Oñate	Guipuzcoa	Gatos monteses Lobo cerval	Entre los cuadrúpedos, lobos comunes y cervales, jabalíes, corzos, tasugos, zorros, garduñas, gatos monteses, liebres y comadrejas	Posible Felis silvestris, Tomo VI, pág. 527	
Monte Pindo (Muros)	La Coruña (Santiago)	Gatos monteses	Se mantienen los gatos monteses y otros animales	Tomo VII, Pág. 21.	

			bravos		
Pirineos	Actuales comunidades autónomas de Cataluña, Aragón y Navarra	Gatos monteses Lobos cervales o lince.	Se crían... osos, jabalíes, lobos comunes, lobos cervales o lince, zorros, gatos monteses, venados, corzos, gamos, cabras monteses o rupicapras, rebezos, liebres, conejos, ardillas, martas y nutrias.	Tomo VII, Pág. 40.	
Proaza (Villa y concejo)	Asturias	Lobos cervales Gato montés	En Bandujo, Traspeña y Sogradío, se crían jabalíes, se encuentra algún oso, muchos corzos, lobos vaqueros y cervales, gatos monteses, zorros en todas partes, y lo que es más útil, liebres, perdices y arceas”	... Tomo VII, Pág 129	
Quiroganes	Ourense.	Gatos	En los	Tomo VII,	

(San Salvador de)	(Valle de Monterrey)	de monteses	montes... jabalíes, venados, lobos, gatos monteses, gamos, zorras, conejos y liebres”	Pág 219
Regil (Sayas)	Guipuzcoa	Gatos monteses	Algunos jabalíes, raposos, gatos monteses, liebres, y las aves comunes”	Tomo VII, Pág. 250
Reinosa	Palencia (Hoy Cantabria)	Gatos monteses	“En Montes Claros... y Valdearroyo ... se crían lobos, osos, corzos, jabalíes, tasugos, rebesos, gatos monteses y todo género de caza, menos los conejos, que no se conocen en aquel país”	Tomo VII, Pág. 258.
Roncal (Valle del Roncal, Isaba, Ustarroz, Urzainqui, Garde, Vidangoz, Burgui,	Navarra	Cervatos Gatos monteses	Se crían en ellos lobos, cervatos, corzos, osos, jabalíes, cabras y gatos monteses, zorros,	Tomo VII, Pág. 359

			tejones, ardillas garduñas y liebres “	
Posadas	Córdoba	Lince	Mucha caza mayor, y entre ella algunos lince.	
Santo Adriano (Concejo) Villanueva	Asturias	Lobos cervales Gatos montese s	“animales bravos y dañinos; zorros, lobos vaqueros y cervales, gatos monteses... de vez en cuando algunos osos y rebezos”	Tomo VIII, Pág 147
Segovia (Provincia)	Segovia	Gatos montese s	Ganado lanar estante,jabalíe s, paletos, ciervos, gatos monteses, zorras, liebres, conejos y volatería.	Tomo VIII, Pág. 186
Sevilla (Provincia)	Sevilla	Gatos cervales o montese s.	“Los animales dañinos que más comúnmente se encuentran en esta provincia, son lobos, raposas, gatos cervales o monteses,	Tomo VIII, Pág. 235.

				comadreja, tejones, turonos, patialbillos... ”	
Toledo (Provincia)	Toledo		Gatos monteses	“jabalíes, venados, lobos, gatos monteses, gamos zorras, conejos y liebres”	Tomo VIII, Pág. 444.
Torea Julian Muros (San de)	Santiago Coruña)	(La	Gatos monteses	“algunos animales bravos como gatos monteses”	Tomo VIII, Pág. 473.
Montes de Gredos, y las que continúan y unen a estas con los montes lusitánicos En lema: Tajo	Avila, Salamanca, Toledo y Caceres	y	Linces	“piaras de ganado merino...que conducen pastores... que los defienden no solo de los lobos, sino de los lince, zorras y otros animales dañinos que abundan en las montañas de...”	Tomo VIII, Pág. 370
Santa Eulalia de Oscos (Concejo)	Asturias		Lobos cervales	Hay gran número de lobos cervales, muy parecidos al tigre, corzos y gatos silvestres	Tomo VIII, Pág. 94
Somiedo	Asturias		Lobos	“Se crían en	Tomo VIII,

(Concejo)		cervales Lince	sus montes osos, lobos, jabalíes, tejones, robezos, y ardillas y algún venado y liebres, y lobos cervales, que parecen ser los que Buffon llama lince ^s ”	Pág. 322.
Trucios (Encartaciones)	Vizcaya	Gatos monteses	“hallándose en sus montes lobos, gatos monteses y otras fieras”	Tomo IX, pág. 83
Zamora (Provincia)	Zamora	Gatos monteses	“críanse ... jabalíes, lobos, zorras, gatos monteses, corzos, venados, liebres, conejos y de todo género de caza en abundancia”	Tomo X, pág. 67.

Table 3. References of *Lynx sp.* from Madoz Dictionary, 1845.

Region/ Province	Place (Not translated)	References (not translated)
Andalusia/ Almería	Bacares	Gatos Montesés
Andalusia/ Córdoba	Córdoba (Ciudad)	Gatos monteses
Andalusia/ Granada	Albuñuelas	Gatos monteses
Andalusia/ Granada	Casulas, Otivar, Granada	Gatos monteses
Andalusia/ Granada	Loja	Gatos monteses
Andalusia/, Granada	Motril (Partido Judicial)	Lince Gatos monteses ¿?
Andalusia/ Granada	Los Tablones, Motril	Gatos Montesés
Andalusia/ Huelva	Cumbres de San Bartolomé	Gatos cervales
Andalusia/ Huelva	Aroche	gatos cervales lince
Andalusia/ Huelva	Bollullos del Condado	lince
Andalusia/ Huelva	Almendro, Ayamonte	Animales de la especie de gatos monteses
Andalusia/ Huelva	Hinojos	Lince*
Andalusia/ Huelva	Almonte	Lince*
Andalusia/ Huelva	<i>Castaño del Robledo.</i>	gato
Andalusia/ Málaga	Malaga provincia	Gatos monteses con pieles atigradas
Andalusia/ Málaga	Alfarnate	Gatos Montesés
Andalusia/ Sevilla	Sevilla Provincia	Gatos monteses
Andalusia/ Sevilla	Sanlúcar La Mayor	Gatos monteses
Andalusia/ Sevilla	Écija	Gatos monteses
Aragón/ Huesca	Anzanigo	Gatos monteses
Aragón/ Huesca	Bacamorta	Gatos Montesés
Aragón/ Huesca	Castisaba	Gatos Montesés
Aragón/ Huesca	Benabarre	Gatos monteses
Asturias	Morcin	“Lobos cervales cuyas pieles manchadas se parecen a del tigre” “Gatos monteses”
Asturias	Cabrales	varias especies de gatos monteses muy perjudiciales á los ganados
Asturias	Cangas de Onís	gatos monteses
Asturias	Cangas de Tineo	Gatos monteses

Asturias/ Oviedo		San Cristobal de Tielbe	Gatos Montes
Basque Country/ Alava		Sopuerta, Encartaciones	Las Gatos monteses
Basque Country/ Guipuzcoa		Guipuzcoa province	Gatos monteses
At that time part of Audiencia Territorial de Burgos			
Basque Country/ Guipuzcoa.		Tolosa, Partido judicial	Gatos Montes
Basque Country/ Guipuzcoa		Aldaba, Tolosa, Guipuzcoa,	Gatos Montes
Basque Country/ Guipuzcoa		Amasa	Gatos monteses
Basque Country/ Vizcaya. At that time Audiencia Territorial de Burgos		Vizcaya province	Gatos monteses
Basque Country/ Vizcaya		Orozco	Gatos monteses Tigres pequeños
Basque Country/ Vizcaya/ Álava		Sierra Gorbeya (At this time at Burgos)	Tigres pequeños Onzas
Basque Country/ Vizcaya		Nanclares de Gamboa, Vizcaya:	Linces
Basque Country/ Vizcaya		Valmaseda,	Gatos monteses
Cantabria/ Santander		Valle de Cabuerniga	Gatos
Cantabria/ Santander		Cosio	Gatos monteses
Cantabria/ Santander		Arroyo, Reinosa	gatos monteses
Cantabria/ Santander		Castro- Urdiales	Gatos monteses
Castille La Mancha/ Albacete		Albacete provincia Sierra de Alcaraz y Yeste	Gatos monteses
Castille La Mancha/ Albacete		Chinchilla	Gatos monteses
Castille La Mancha/ Toledo		Escalona	Gatos monteses
Castille La Mancha/ Guadalajara		Moratilla de los Meleros	Gatos Montes
Castille La Mancha/		Mota de Altarejos	Gatos Montes

Cuenca		
Castille La Mancha/ Ciudad Real.	Agudo, (Near Almadén)	Gatos cervales
Castille La Mancha/ Ciudad Real	Almadén (Partido Judicial) Includes description of Sierra Madrona.	Gatos Montesés
Castille La Mancha/ Ciudad Real	Almadén (City)	Gatos monteses
Castilla León/ Ávila	Candeleda, Arenas de San Pedro	Lobo cerval
Castille Leon/ Soria	Espejon	Gatos monteses
Catalonia/ Barcelona	Vich	Gatos monteses
Catalonia/ Lerida	Cogoll mont, near La Seo de Urgell, Castellciutat, Arabell, Ballesta, Campmajor, Anserall, Ars, San Juan y Amurri	Gatos monteses
Catalonia/ Girona	Santa Coloma de Farnes,	Gatos Montesés
Catalonia/ Barcelona	Barcelona Province. Mountains out of Pyrenees.	Gatos Montesés
Catalonia, Aragón, Navarra.	Pirineos	Lince
Extremadura/ Badajoz	Azuaga	Gato cerval, parecido al tigre.
Extremadura/ Cáceres	Sierra de San Pedro	Lobo cerval
Galicia/ Orense	Orense Provincia	Gatos Montesés
Galicia/ Orense	Santa María de Casayo	Gatos Montesés
Madrid/ Madrid	Tielmes	Gatos Montesés
Navarra	Larraona, Amescoa Alta	Gatos monteses
Navarra	Navarra (provincia)	Lobos cerbales Gatos Montesés
Navarra	Arruazu. Araquil	Gatos monteses
Navarra	Aoiz	Gatos Montesés

Navarra	Aranache	Gatos monteses
Rioja/ At that time Logroño	Mansilla	Gatos monteses
Valencian Community/ Castellón.	Arañuel	Gatos monteses
Valencian community/ Castellón	Castellfort (Partido judicial de Morella)	Gatos cervales
Valencian Community/ Valencia	Sueca	Gatos ¿Silvestres? Posibly Wild cat.
Valencian community/ Valencia	Millares	Gatos cervales.
Valencian community/ Valencia	Buñol	Gatos monteses

Table 4. Lynx referenced in an area where no references exist in towns or villages

Province	Reference Madoz	Towns	Reference in town
Navarra	Lobos Cerbales (Madoz)	Aoiz, Arruazu. Araquil, Larraona, Amescoa Alta	Gatos monteses
Pyrenees¹²⁴	Lince (Madoz)	Aragón (Benabarre, Castisaba, Bacamorta, Anzanigo)	Gatos monteses
		Catalonia (Santa Coloma de Farnes, Vich, Cogoll mont, near La Seo de Urgell)	Gatos monteses
Malaga	Gatos monteses con pieles atigradas (Madoz)	Alfarnate	Gatos monteses
(Granada) Partido judicial Motril.	Lince (Madoz)	Los Tablones	Gatos monteses
Orense	Gatos monteses (Madoz)	Santa María de Casaio	Gatos monteses
Sevilla	Gatos monteses (Madoz)	Sanlúcar La Mayor, Écija	Gatos monteses

¹²⁴ Navarra is part of Pyrenees but it have a particular reference.

Table 5. References in Dictionaries of Royal Academy of Spanish Language. Real Academia Española de la Lengua (RAEL)

Word (translated if possible)	referenced	Text (Translated)	Reference/ year
Gato Clavo (“Pin” cat)		“kin of Gato Montés” “Also called Serval cat. Kind of cat which tail is near 35cm long. It has wide head with long hair around the face. Soft, grey, short fur, with a lot of black spots which became ring at the tail. It lives at central and southern Spain. It climbs the trees and is a dangerous vermin. Fur is valuable for clothes.	RAEL 1803 RAEL 1914
Tigre. Tiger (Jaguar)		“quadruped, cat shaped, much bigger and faster than it. Lion like claws, long tail, yellow eyes, great mandibles. Its fur is full of different colour spots.	All dictionaries RAEL from XVIIIth/ XIXth century but 1899 dictionary. From 1898, Tiger is used for <i>Panthera tigris</i> , not for Jaguar.
Lobo cerval (deer wolf)		“Very dangerous vermin” “good sigh” “spotted skin beast” “Also called Lynx. It’s called Wolf but it seems more like a cat” “spotted skin beast”	RAEL 1729 RAEL 1822
Lynx		“quadruped animal also called lobo cerval. It’s not as strong as a wolf but it is a few similar. Its fur looks like Tiger fur because it is full of spots. It has a great sawn. Lynx”	RAEL 1780
Gato Montés (Wild cat)		A “kind” of gato montés is Gato Clavo (“Pin” cat)	RAEL 1803

Table 6: Holocene records of lynx (*Lynx* spp.) in archaeological sites from the northern region of the Iberian Peninsula.

Species morfometric classification*	Molecular identification	Site	Aprox age of the lynx remains
<i>Lynx lynx</i>	<i>Lynx lynx</i>	Sima Pagolusieta (Vizcaya, Spain)	Holocene
<i>Lynx lynx</i>	<i>Lynx pardinus</i>	Urratxa III (Vizcaya, Spain)	NA
NA	<i>Lynx lynx</i>	Serpenteko (Navarra, Spain)	Holocene
NA	<i>Lynx lynx</i>	Cueva de los Cinchos (Asturias, Spain)	Holocene
NA	<i>Lynx lynx</i>	Pozu'l Lince (Asturias, Spain)	Holocene
<i>Lynx lynx</i>	NA	Santimamiñe (Vizcaya, Spain)	Holocene & Pleistocene
<i>Felis lynx</i>	NA	Las Pajucas (Vizcaya, Spain)	Holocene
<i>Lynx pardinus</i>	<i>Lynx pardinus</i>	Chaves (Huesca, Spain)	Holocene & Pleistocene
<i>Lynx pardinus</i>	<i>Lynx pardinus</i>	Portalón (Burgos, Spain)	Holocene
<i>Lynx pardinus</i>	<i>Lynx pardinus</i>	Peña del Moro (Barcelona, Spain)	Holocene
<i>Lynx</i> sp.	NA	Marguineda (Andorra)	Holocene
<i>L. pardinus</i>	NA	Balma de l'Espluga (Gerona, Spain)	Holocene
<i>L. pardinus</i>	NA	Can Sadurní (Barcelona, Spain)	Holocene
<i>Lynx</i> sp.	NA	Cova de Bolet (Barcelona, Spain)	Holocene
<i>Lynx</i> cf. <i>spelaeus</i>	NA	Cova Verda (Barcelona, Spain)	Holocene
<i>Lynx</i> sp.	NA	Parco (Lérida, Spain)	Holocene
<i>Lynx lynx</i>	NA	col d'Aran (Pyrenees, France)	Holocene
<i>Lynx lynx</i>	NA	Schatzi (Pyrenees, France)	Holocene
<i>Lynx lynx</i>	NA	Péne (Pyrenees, France)	Holocene
<i>Lynx lynx</i>	NA	Montfort (Pyrenees, France)	Holocene & Pleistocene

Species morfometric classification*	Molecular identification	Site	Aprox age of the lynx remains
<i>Lynx</i> cf. <i>spelaeus</i> ?	NA	Montmaurin (Pyrenees, France)	Pleistocene/Holocene
<i>Lynx</i> cf. <i>spelaeus</i>	NA	Lombrives (Pyrenees, France)	NA
<i>Lynx</i> sp.	NA	Espélugues (Pyrenees, France)	Holocene & Pleistocene
<i>Lynx</i> sp.	NA	Élèphant (Pyrenees, France)	Holocene & Pleistocene
<i>Lynx</i> sp.	NA	Mas-d'Azil (Pyrenees, France)	Holocene & Pleistocene
<i>Lynx</i> cf. <i>spelaeus</i>	NA	La Tute de Carrelore (Pyrenees, France)	Holocene

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