

## Systematic palaeontology (Vertebrate palaeontology)

First archaeozoological identification of Atlantic sturgeon  
(*Acipenser oxyrinchus* Mitchill 1815) in France

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Abstract

To this day, the only sturgeon to be listed on the French vertebrate inventory is the European sturgeon (*Acipenser sturio* Linnaeus, 1758). The recent study of sturgeon remains on various French archaeological sites shows the presence of another species: the Atlantic sturgeon (*A. oxyrinchus* Mitchill 1815). This species already existed in the French Atlantic region at the end of the Neolithic Age 5000 years ago and was still to be found 3000 years later. Thus the *A. oxyrinchus* determined in several Baltic medieval sites are neither the only nor the first sturgeons to have inhabited European waters. Sturgeon restoration projects in European rivers necessitate a precise determination of the native species. In the case of relict or extinct species, the bone remains found on archaeological sites represent the most reliable source of information. This discovery will also be the starting point of palaeogenetical research (mitochondrial and cellular aDNA) and will give information about the genetic diversity of these threatened or recently extinct populations. **To cite this article:** N. Desse-Berset, C. R. Palevol 8 (2009).

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## Résumé

**Première identification en France de l'esturgeon atlantique (*Acipenser oxyrinchus* Mitchill 1815) par l'archéozoologie.** À ce jour, le seul esturgeon retenu sur la liste des Vertébrés de France est l'esturgeon européen (*Acipenser sturio* Linnaeus, 1758). L'étude récente de restes d'esturgeons de plusieurs sites archéologiques français révèle la présence d'une autre espèce, l'esturgeon atlantique (*A. oxyrinchus* Mitchill 1815). Cette espèce se trouvait déjà dans la zone atlantique française à la fin du Néolithique, il y a 5000 ans, et y était encore 3000 ans plus tard. Ainsi, les *A. oxyrinchus* déterminés dans plusieurs sites médiévaux baltes ne sont ni les seuls, ni les premiers, à avoir vécu dans les eaux européennes. Les programmes de réintroduction des esturgeons dans les fleuves européens nécessitent une détermination précise de l'espèce d'origine. Dans le cas d'espèces relictives ou disparues, les restes osseux des sites archéologiques représentent la source d'information la plus fiable. Cette découverte sera également le point de départ de recherches paléogénétiques (ADNa mitochondrial et cellulaire), qui apporteront des informations sur la diversité génétique de ces populations menacées ou récemment éteintes. **Pour citer cet article :** N. Desse-Berset, C. R. Palevol 8 (2009).

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**Mots clés :** Esturgeons ; *Acipenser oxyrinchus* (esturgeon atlantique) ; *A. sturio* (esturgeon Européen) ; Première identification d'*A. oxyrinchus* en France ; Archéozoologie ; Réintroduction

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## 1. Introduction

The remains dug up through archaeological excavations represent an essential source of information for the history of biodiversity. They are the most reliable evidence to confront present with past populations. In the case of extinct species, they represent the only proof of a former existence. In France, the sole sturgeon species described as native during the Holocene in fauna inventories listed on the national territory is, to this day, the European sturgeon [5,21].<sup>1</sup> This species is also attested to in faunal studies of archaeological sites, like for instance the site of “Jardin d’Hiver” in Arles (in the Mediterranean region), which has revealed a large number of sturgeon remains [7]. Recent archaeozoological and palaeogenetical studies have confirmed the sole presence of *A. sturio* in the main French river basin in which the presence of *A. naccarii* was hypothesized, namely the Rhône River [4,10,20]. The recent analysis of sturgeon remains found on several archaeological sites from the French Atlantic region allows us to announce today that another species was present and has been present for many a millennium.

In the context of sturgeon restoration projects implemented to preserve these worldwide threatened and endangered species,<sup>2</sup> the determination of the native species is fundamental [24]. Information can be found in inventories or local fauna guides [5,21], as well as in historical sources (texts). Animal collections in museums whether they are naturalized or immersed in alcohol or formol represent another possible source of information. Their origin is often subject to caution especially

for animals collected as early as the 18th century: labeling errors may have occurred at a time when trade and importations were frequent. Moreover these specimens are not always well preserved and may have suffered harsh treatment (painting, varnish...).

The remains dug up during archaeological excavations performed in stratigraphy and according to meticulous recording methods turn out to be extremely important: they represent the most reliable factual data. They allow us today to announce the presence in France of a second species, usually thriving along the North-American Atlantic coast: the Atlantic sturgeon (or black sturgeon).

## 2. Material and methods

### 2.1. Presentation of the archaeological sites

The results shown here come from archaeozoological analyses carried out on three sites (Fig. 1):

- Le Langon (Vendée) once located next to the “Marais poitevin”, which has become dry today, was an important Gallo-Roman town on the course of a Roman road and a harbour on the Vendée River estuary. The rescue excavations directed by Bernard and Pascal [2] has revealed fish bones among which we have determined 22 sturgeon scutes remains coming from several specimens. The majority of these bones have been dated by relative chronology to the Augustean period (first half of the first century AC). Only one fragment belongs

<sup>1</sup> See the National Inventory of the natural Heritage (*Inventaire national du Patrimoine naturel* [INPN] de la France. Web site: <http://inpn.mnhn.fr>); (*Muséum national d’histoire naturelle* [MNHN], Paris) and the Taxonomic Register of Flora and Fauna for metropolitan France and French overseas Departments (*Référentiel taxonomique des taxons de faune et de flore pour la France métropolitaine et les départements d’outremer* [TAXREF]).

<sup>2</sup> The sturgeons are protected by several international conventions: The Washington Convention (CITES), 1973; The Bern Convention, 1979; The Bonn Convention, 1979; OSPAR Convention, 1992; The Barcelona Convention, 1995; The Convention on biological diversity, 1992. Since 1982, it is forbidden to catch sturgeon in France. The sturgeon is a species appearing in the II and IV appendix of the “Directive Habitats” and is categorized as critically endangered worldwide by the IUCN. On the national level it used to inhabit most of the large rivers but has little by little disappeared from the Seine, the Rhine, the Rhone and the Loire basins. Today, at European level, it profits from a research and a protection project and from three « *Arrêtés préfectoraux de Protection de Biotope* » (APB) in Aquitaine by the Garonne basin, one of them having as its essential mission, to preserve a spawning ground (5 [p. 32], 24 [p. 251]).

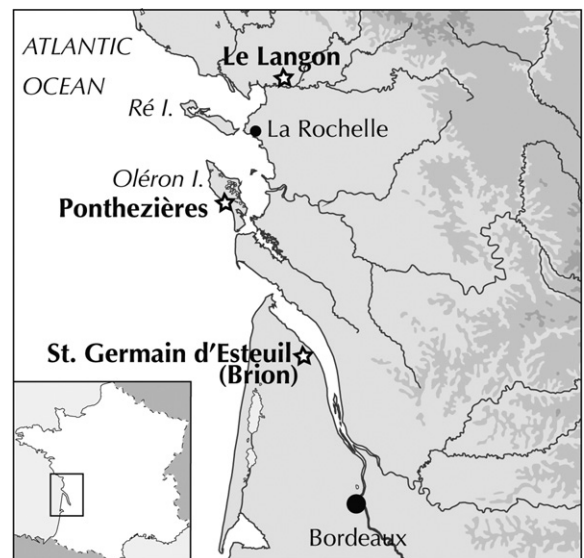


Fig. 1. Location of mentioned archaeological sites.  
Fig. 1. Carte des sites archéologiques cités.

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