

Curator's note

This month has been marked by the horrendous bushfires on the Australian continent. Bushfires have always been an intrinsic feature of Australia's ecology and environment. Some of the country's native flora have evolved strategies to survive such fires (e.g. *Eucalyptus* spp.), rising phoenix-like from the ashes, while others actually rely on bushfires for reproduction.

Fire events have been an interwoven part of the Australian ecosystem for thousands of years. Bushfires have an impact on extensive areas and cause vast damage to property, evacuation of residential areas and loss of human life. This month's widespread fires are considered to be the worst in human memory, and, apart from structural damage to property, have accounted for an immense negative effect on Australia's biodiversity. Large swathes of natural forest have been razed to the ground and many of the continent's unique faunal elements have been severely impacted. Species such as the koala and the kangaroo have been decimated, and fears for their survival have been expressed. Although such iconic animals, so emblematic of Australia, have made the international headlines, hundreds of other plant and animal species are also in danger.

One such species which was saved by a special firefighting effort was the Wollemi Pine (*Wollemia nobilis*), a tree which according to fossil records was already living 200 million years ago. The only known Wollemi Pines now living in the wild are found in a relict population discovered in 1994 in New South Wales. Last year a Wollemi Pine donated by the Australian High Commission was planted by the University Rector at the Argotti Botanic Gardens in Floriana.



The Wollemi Pine recently planted by the University Rector at Argotti.

Global warming has been widely perceived to be at the root cause of these fires. Record high temperatures, reaching 45°C in some instances, have been recorded. The Australian Government has come under fire for downplaying the importance of climate change and for effecting negligible strategies to combat global warming. Such criticism is resulting in a change of heart which will hopefully lead the Australian authorities to adopt a much harder stance and effect more practical measures against climate change.

News

- A student reading for a Bachelor of Communications degree in the Faculty of Information and Communications Technology recently requested the loan of a selection of microscope slides which he wanted to photograph under high power for a course assignment. Another example of the pedagogical function of the museum.
- Recent acquisitions by the museum

Scyliorhinus canicula – Lesser Spotted Dogfish (Fam Scyliorhinidae)

Galeus melastomus – Blackmouth Catshark (Fam. Pentanchidae)

Oxynotus centrina – Angular Rough Shark (Fam. Oxynotidae)

(Thanks to Prof. Adriana Vella. for donating these shark specimens.)

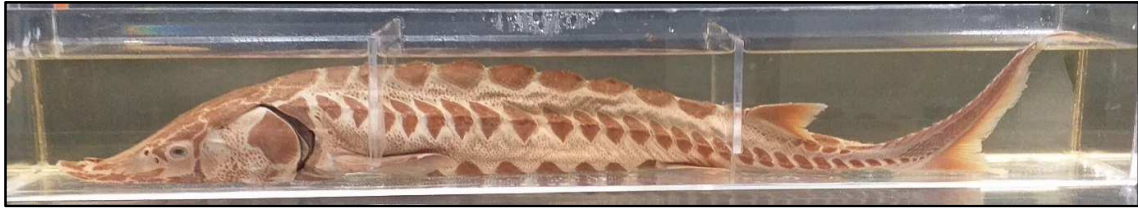
Specimen of the Month

For this month's specimen I have chosen a rather primitive fish which supplies one of the world's greatest and most expensive delicacies – the sturgeon, *Acipenser sp.* The sturgeon is of course the source of caviar – those tiny black fish eggs which are much sought after by gourmands all over the world. The sturgeon genus *Acipenser* comprises 17 living species and another 10 which are only known from fossil remains. It forms part of the primitive Order Acipenseriformes within the Class Actinopterygii (ray-finned fishes). The Order also includes paddlefish (*Polyodon spp.*) whose egg masses are also prized delicacies. Unlike most other actinopterygian fish, sturgeons have a cartilaginous rather than a bony skeleton, a feature which is not considered to be primitive since their ancestors had bony skeletons. They also lack scales, their body being armoured with lateral rows of hard scutes.

Sturgeons are large predatory fish (up to 6m in length) which feed on other fish but are also known to consume waterfowl and seal pups. Like salmon, they are anadromous, that is they live in the sea but migrate to freshwater rivers for spawning. In the wild, eggs are laid on gravel (which they resemble) and hatch after 10 – 14 days. The larvae feed on invertebrates but start preying on fish when they reach a length of 10cm; they then start on the long journey back to the sea.



Wild *Acipenser sturio*.



The specimen of *Acipenser* sp. in the DoB Museum.

The most well-known type of caviar is the Beluga Caviar which originates from sturgeons in the Baltic and Black Seas. The currently accepted name for these fish is *Huso*, formerly known as *Acipenser huso*. Genuine caviar (originating only from members of the Family Acipenseridae) is produced on an industrial scale in no less than 13 countries, mostly from farmed fish. The most expensive caviar is produced from wild sturgeon by the countries bordering the Caspian Sea, but there are other types which fetch lower prices. The highest price ever paid for caviar was a staggering \$34,500 per kg for the roes obtained from an albino sturgeon between 60–100 years old caught in the southern Caspian Sea. A slice of toast spread with 10 gm of this caviar would set you back \$345 (price of toast not included). The largest producer of caviar is China, accounting for ca. 50% of global production. Known as Kaluga Caviar, it is the roe of the Kaluga sturgeon (*Huso dauricus*) which lives in the River Amur between China and Russia. Kaluga sturgeons and all other members of the Acipenseridae are listed as endangered in the IUCN Red list. Although most current caviar production is from farmed fish, some fishing of wild fish still takes place.



An expensive breakfast

Acipenser sturio is found in the Eastern Mediterranean, and has been recorded in Maltese waters. Forskåal includes both *Acipenser sturio* and *A. huso* in his “Catalogue of the different kinds of fish on the coast of Malta” as reproduced by Boisgelin¹. The sturgeon is known in Maltese as *Sturjun*.

¹ Boisgelin, Louis de, *Ancient and Modern Malta* Vol. I, London, 1805

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CATALOGUE
 OF THE DIFFERENT KINDS OF
FISH
 ON THE COAST OF
MALTA,

ACCORDING TO A LEARNED PHYSICIAN OF THAT ISLAND*.

Generical names.	Species.	Maltese names.
DELPHINUS	Orca Delphis	I Delfin.
Raja	Altavela Torpedo Pastinaca	Il Hamiema.
	Aquila	Il Hamiema.
	Batis	Il Raja.
	Musmarinus (piscis novus)	
Squalus	Pristis Catulus Spinax Zygana Squatina Lamia Centrina	Il Sia. Il Rusetta. Il Chelp. il Bahar. est Arab, Kelh el bahr, Il Martel. Il Gabdol.
Acipenser	Sturio Huso	
Petromyzon	Lampetra	
	Mustela	Il Mustilla.
Lophius	Piscatorius	

* See *Descriptions Animalium, &c. quæ in Itinere Orientali observavit Petrus Forskål*, page xviii. et xix.; one volume in quarto, printed at Copenhagen, with plates, 1775.

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**Extract from Boisgelin's "Ancient and Modern Malta" listing
Acipenser sturio and *A. huso* from Maltese waters.**

Reference Collections – Nudibranchia

The nudibranchs (literally "naked gills"), also called sea-slugs, are soft-bodied molluscs which are arguably the most colourful and striking of marine invertebrates. They belong to the Order Nudibranchia within the molluscan Class Gastropoda. They are found in all seas from the Arctic to the Antarctic and live at depths ranging from the intertidal zone down to 700m. They are benthic or bottom-living organisms, except for a few species which lead a planktonic or demersal life. Adult nudibranchs lack a shell, but in most species the larval form, known as a veliger, has a coiled shell which is discarded when the larva transforms to the adult stage. They have sensory cephalic tentacles and bear external gills which are often shaped as beautiful, feathery plumes.

Apart from their fanciful shapes and colouring, nudibranchs are also noted for some unusual features. Being unarmoured and therefore susceptible to predation, some species have evolved alternative protective features. These range from camouflage to aposematism (bright coloration

to warn predators that they are toxic or inedible). Perhaps the most extraordinary defence mechanism is that adopted by certain forms which feed on hydroids. They ingest their prey's toxic stinging cells (nematocysts), to which they are immune, and these end up on the external surface of the animal where they are used for defence. In a similar process, some coral-feeding species of nudibranchs use the chloroplasts found in algae living symbiotically in the corals to manufacture nutrients (a process known as kleptoplasty).

The DoB Museum's collection is small but important as this group of molluscs has been little studied locally. It consists of 23 specimens (19 species in 14 genera) all collected in Maltese waters by Charles Sammut between 1992 and 1996.



Some of the nudibranchs in the DoB collection in their natural habitat.
Top (l - r) *Calmella cavolini*; *Dendrodoris limbata*; *Flabellina pedata*.
Bottom (l - r) *Felimare tricolor*; *Trinchisia caerulea*; *Felimeda binza*.

Quote of the Month

“Although Nature needs thousands or millions of years to create a new species, man needs only a few dozen years to destroy one.”

Victor Blanchard Scheffer (1983)

David Dandria, Curator

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