Importance of better enforcement of existing legislations

Developing practical tools for monitoring trade in CITES-listed stony corals

Dr Joanna Murray
Global trade in stony corals
Challenges with enforcement

SAME!  Taxonomy

DIFFERENT!

Appearance in trade

DIFFERENT!

Mariculture
Trade in live coral: how we are developing tools to improve tracking of the most traded marine animals

Joanna Murray, 17 February 2022 - International, Vulnerable species

Our approach
Process

1. Identify taxa in trade
2. Develop groupings
3. Develop genus page content
4. Review, adapt and launch
**Introduction**

Story corals are traded internationally, typically as species for the aquarium market, and dead pieces for the curio trade. Other coral products include rocks, fragments, and sand, which are also traded as they form important components of a home or public reef aquarium.

**Context pages**

**Mariculture**

The proliferation of corals, usually in a saltwater in the sea floor. Small pieces of wild-collected coral can be detached from the parent, or new individuals can be "propagated" from the parent to produce new individuals which are then allowed to grow. The newly grown individuals can then be fragmented, creating a source of smaller stock for mariculture operations or for tissue culture. The small, mounted fragments on sponges are allowed to grow until they reach a size where they can be harvested. In Indonesia, the collection of mother stocks is regulated through a permit and quota system. Small shipments of live coral remains outdoors, either via a permit or an export licence issued by a government agency.

**Shipments: Red flags**

- **Small shipments**
- **Damaged packaging**
- **Disorganised contents**
- **Concealed packaging**

**CITES Source Codes**

CITES Source Codes should be used for all CITES permits and certificates, to inform Parties about the management system used to produce the specimen. For example, CITES Source Codes indicate whether a specimen was sourced from the wild or produced in captivity.

**How can we calculate how much coral is traded?**

The trade database of CITES reports the quantities and types of specimens. Trade data is collected from CITES by producing Parties are input to the CITES Trade Database managed by IUCN-TRAFFIC. This enables monitoring of the levels of international trade in all tax included in the CITES Appendices.

**Trade data for story corals including where they come from can be easily explored using the CITES Wildlife Trade监督管理 tool**

https://wtd.cites.org/online/

**Live coral trade between 2010-2019 according to this groupings**

- **W**: 5.5 million pieces from 10 taxa of Marbled Branching coral were traded (17%)
- **F**: Over 3.4 million pieces from 4 Branching taxa were traded (27%)
- **A**: 4,6 million pieces from 20 taxa of branching coral were traded (17%)
- **B**: 3 million pieces of 3 taxa of branching coral were traded (19%)
- **C**: 5.2 million pieces from 1 taxa of branching coral were traded (7%)

**Trade data for story corals including where they come from can be easily explored using the CITES Wildlife Trade监督管理 tool**

https://wtd.cites.org/online/
Watchlist taxa may be subject to current or previous trade suspensions or other restrictions, or they may be slow-growing, have a high value, or are traded in high volumes.
How to use this guide

Check packing list & look up genus (use contents)

OR

Look at shape (use page 15)

Use thumb tabs to navigate to correct chapter

Identify the coral accurately & quickly
From the packing list

<table>
<thead>
<tr>
<th>FLESHY POLYPS</th>
<th>Branching</th>
<th>Encrusting (larger polyps)</th>
<th>Encrusting (smaller polyps)</th>
<th>Solitary and Free-Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ephyllia</td>
<td>Aeropora</td>
<td>Seriatopora</td>
<td>Lepiostrea</td>
<td>Cycloderia</td>
</tr>
<tr>
<td>Heliofungia</td>
<td>Pocillopora</td>
<td></td>
<td>Turbinaria</td>
<td></td>
</tr>
<tr>
<td>Cataplynnia</td>
<td></td>
<td></td>
<td>Montipora</td>
<td></td>
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<tr>
<td>Denandrophylla</td>
<td></td>
<td></td>
<td>Psmastocorys</td>
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<tr>
<td>Tobastraea</td>
<td></td>
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<td>Merulina</td>
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<td>Hydrophora</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CITES</th>
<th>Watch list</th>
<th>Visual glossary</th>
<th>Coral group by chapter</th>
<th>About this guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global trade of live coral</td>
<td>Duncanopsammia</td>
<td>Phytopora</td>
<td>31 - 32</td>
<td>0</td>
</tr>
</tbody>
</table>
From looking at shape

<table>
<thead>
<tr>
<th>Coral grouping by chapter</th>
<th>Coral groupings in this guide are not taxonomic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large fleshy tentacles and polyps are visible?</td>
<td>The grouping of corals in this guide is not based on scientific taxonomy, but by the shapes recognisable in trade. Where a genus of coral has multiple growth morphologies, a key is provided at the start of each chapter to help you find the correct page for the coral you are identifying.</td>
</tr>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Are there branches or finger-like structures and a narrow stem attachment to the base?</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Is the coral encrusting with corallites larger than 10 mm?</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>Is the coral solitary (single polyp) or free-living?</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

Colour should not be used for identification

The colour of coral in the wild and trade varies and cannot be used as a reliable characteristic for identification/differentiation between taxa.
False Mariculture

Detecting false mariculture

1. Growing edge
   Healthy growing edge established on the artificial base, no fresh cuts or glue present.

2. Artificial base properties
   Artificial base and mariculture tag has biofouling of marine life e.g., calcareous algae.

3. Established growth
   No cut polyps, healthy growth onto the artificial base (e.g., Goniopora) or from the canopy (e.g., Euphyllia).

Sign of True Mariculture

- Biofouling of artificial base and no new cuts

Sign of False Mariculture

- Freshly cut Goniopora to demonstrate how false mariculture may appear. Clean, white, sharp edge visible.

Maricultured Euphyllia is hard to distinguish

- Euphyllia should have tissue growth on the external of the stem, biofouled artificial base and no new cement (often green tinge).
Be aware of retracted tentacles

A colony with completely retracted tentacles may look like one of the other coral shape groups. Fleshy polyps may be retracted in transit and not be visible (see below).
Euphyllia

LOOK-ALIKES
Long tentacles obscuring mouth and the rest of the polyp is unique to Euphyllia. Heliofungia looks similar to E. glabrescens. Hammer-shaped tentacles look similar to but are longer than Physogyra and Plerogyra’s bubble vesicles.

E. glabrescens  E. ancora  Physogyra  Plerogyra  Heliofungia

Page 33  Page 35  Page 23
Identifying to species*

* Only required for a handful of corals, the rest are identified to genus only.

**E. ancora**
- Tentacle tips are hammer- or horse-shoe shaped.

**E. paraancora**
- Polyps have tentacles similar to those of *E. ancora*, with hammer-shaped or irregular triangular-shaped ends.

**E. divisa**
- Polyps have large rod-shaped tentacles, with smaller branches ending in white knob-like tips.

**E. paradivisa**
- Polyps are similar to *E. divisa* with branched tentacles, but *E. paradivisa* has more secondary branching.

**E. glabrescens**
- Polyps with long rod-shaped tentacles, with white knob-like tips.

**E. cristata**
- Polyps with short rod-shaped tentacles, similar to those of *E. glabrescens*, but shorter, ends with light tips.

**E. yaeyamaensis**
- Tentacles are short and fat, covered with short uniform sub-branches, each ending in knob-like tips.

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**Taxonomic changes**

CITES permits must reflect current CITES nomenclature, details can be found: [www.speciesplus.net](http://www.speciesplus.net)

Taxonomy of corals is complex and may be subject to change. For accepted scientific names see: [www.marinespecies.org](http://www.marinespecies.org).
Supporting better enforcement

Coral guide supporting identification of legal corals at export and import. Currently being produced in Bahasa with training events planned for Indonesia and the UK.

Guide being used by staff at the borders.
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Identification of CITES-listed live stony corals in the aquarium trade

SCAN ME

https://tinyurl.com/IDguideCITESstonycorals