Slide 11

Signalment/History: *Gorgonia ventalina* (IRCP 151-B2**)** collected from Turrumote, Puerto Rico on 4 April 2004 by Ernesto Weil.

Field Diagnosis: Presumed aspergillosis.

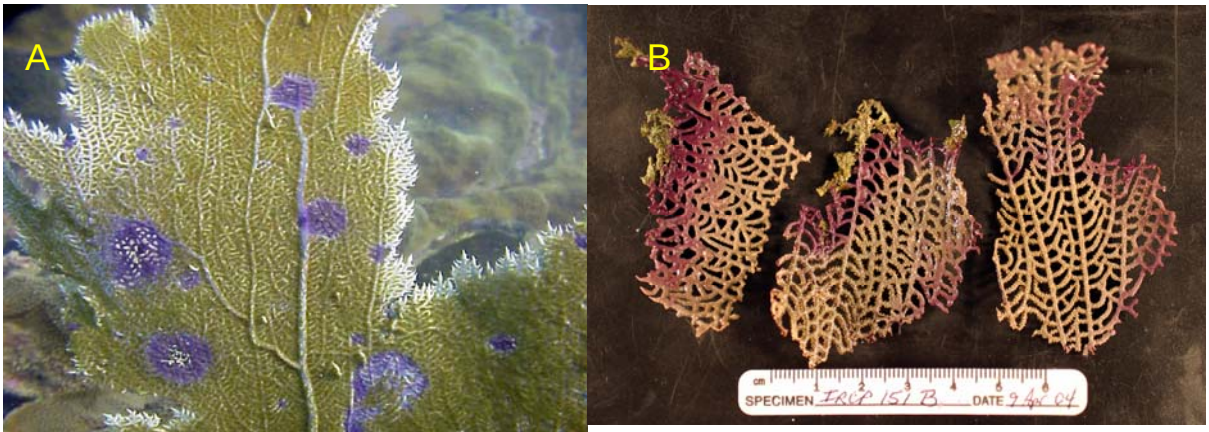

Figure 25 A & B. *Gorgonia ventalina* observed with presumed Aspergillosis: **A-** field photo (similar lesion photo, Ernesto Weil); **B-** fixed specimen (Kathy Price).

Histopathology Description (Fig. 26):

Polyp: No remarkable lesions are seen.

Skeleton/coenenchyme: There are large clefts between tissue and gorgonin and within gorgonin. In some cases, fan-shaped clusters of thin branching non-staining structures invade the edge of the gorgonin (Fig. 26A, ↑). Tissues adjoining the cleft are lined by a thin brown membrane (melanized gorgonin cortex) (Fig. 26A, ►). Gorgonin cortex is thickened and melanized surrounding empty clefts and infected regions of gorgonin. Multifocally, the edge of the cortex is frayed. Adjoining these clefts are numerous eosinophilic granular cells (Fig. 26B, ↑). Within solenia are aggregates of cellular debris (Fig. 26C, ↑). In some cases, within the clefts, are large non-parallel walled structures containing intralumenal pyriform bodies. Cyanobacteria and concatenated rods and algae are also seen. These are surrounded by homogenous eosinophilic material.

Morphologic Diagnosis:

- Granulocytic infiltration of the mesoglea associated with moderate multifocal intra-gorgonal fungi.

Recommendation: None.

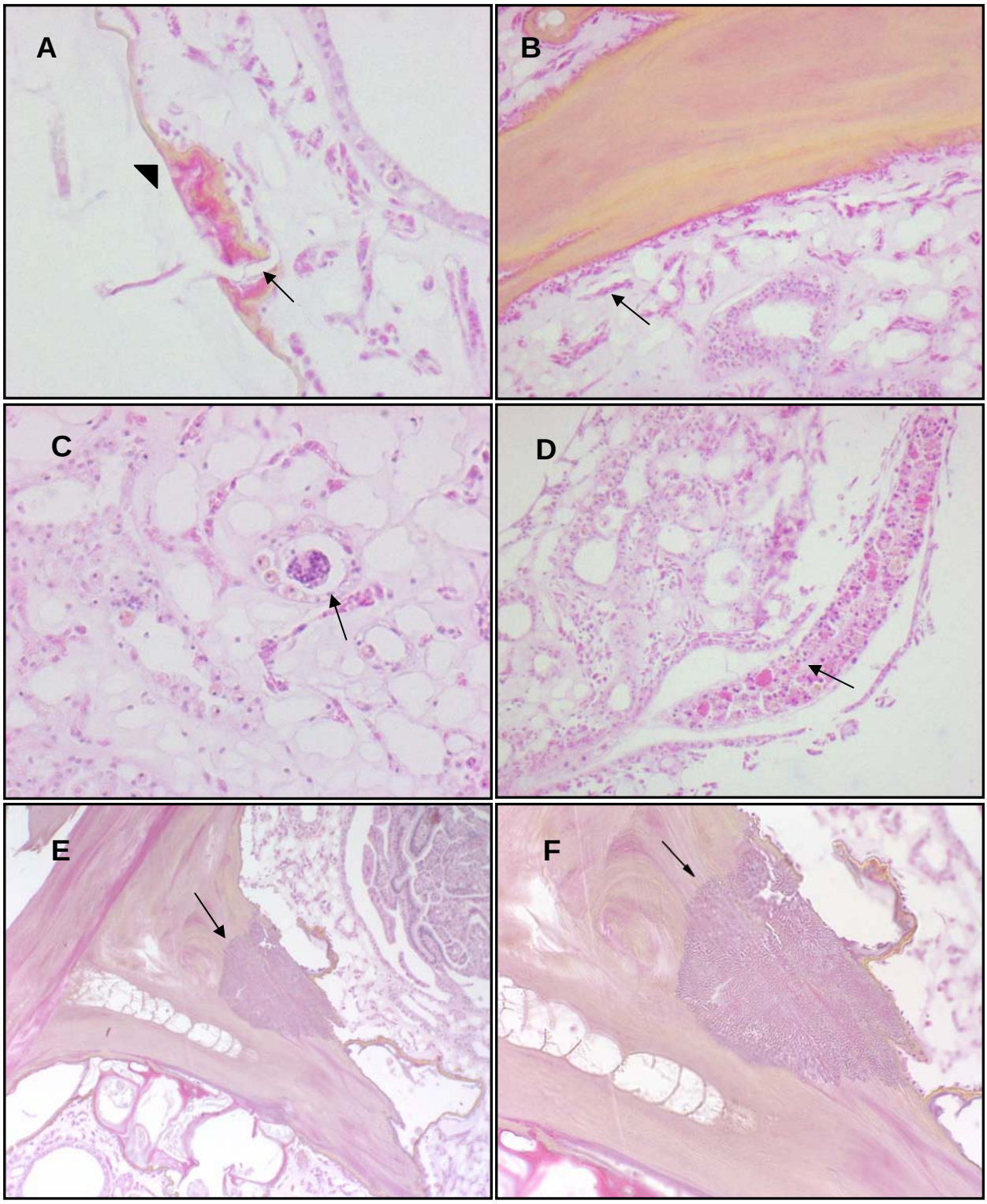

Figure 26 A-F. Photomicrographs of diseased *Gorgonia ventalina* tissue fixed in seawater:Z-Fix and stained with MHE: **A-** showing non-staining structures (hyphae) (↑) and deposited melanin (yellowish area) with adjacent tiny granules (►); **B-** 20x, aggregates of eosinophilic granular cells (↑); **C-** accumulations of debris in the lumen of the solenia (↑); **D-** 10x, cross section of a planula (↑); **E-** 10x, note fan-shaped aggregation of fungal hyphae (↑); **F-** higher power view of fan-shaped invasion of fungal hyphae (↑).

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Signalment/History: *Montastraea faveolata* (IRCP 154-B3) collected from Turrumote, Puerto Rico on 4 April 2004 by Ernesto Weil.

Field Diagnosis: Presumed yellow blotch.

Figure 27 A & B. Presumed yellow blotch observed in *Montastraea faveolata*:
A- field photo (photo similar lesion, Ernesto Weil); **B-** fixed specimen (photo: Kathy Price).

Histopathology Description (Fig. 28):

Coenenchyme: Unremarkable.

Polyp: Unremarkable.

Skeleton: There are sparse mats of large filamentous irregular structures (Fig. 28B).

Morphologic diagnosis: No remarkable lesions.

Recommendation: Reevaluate section.

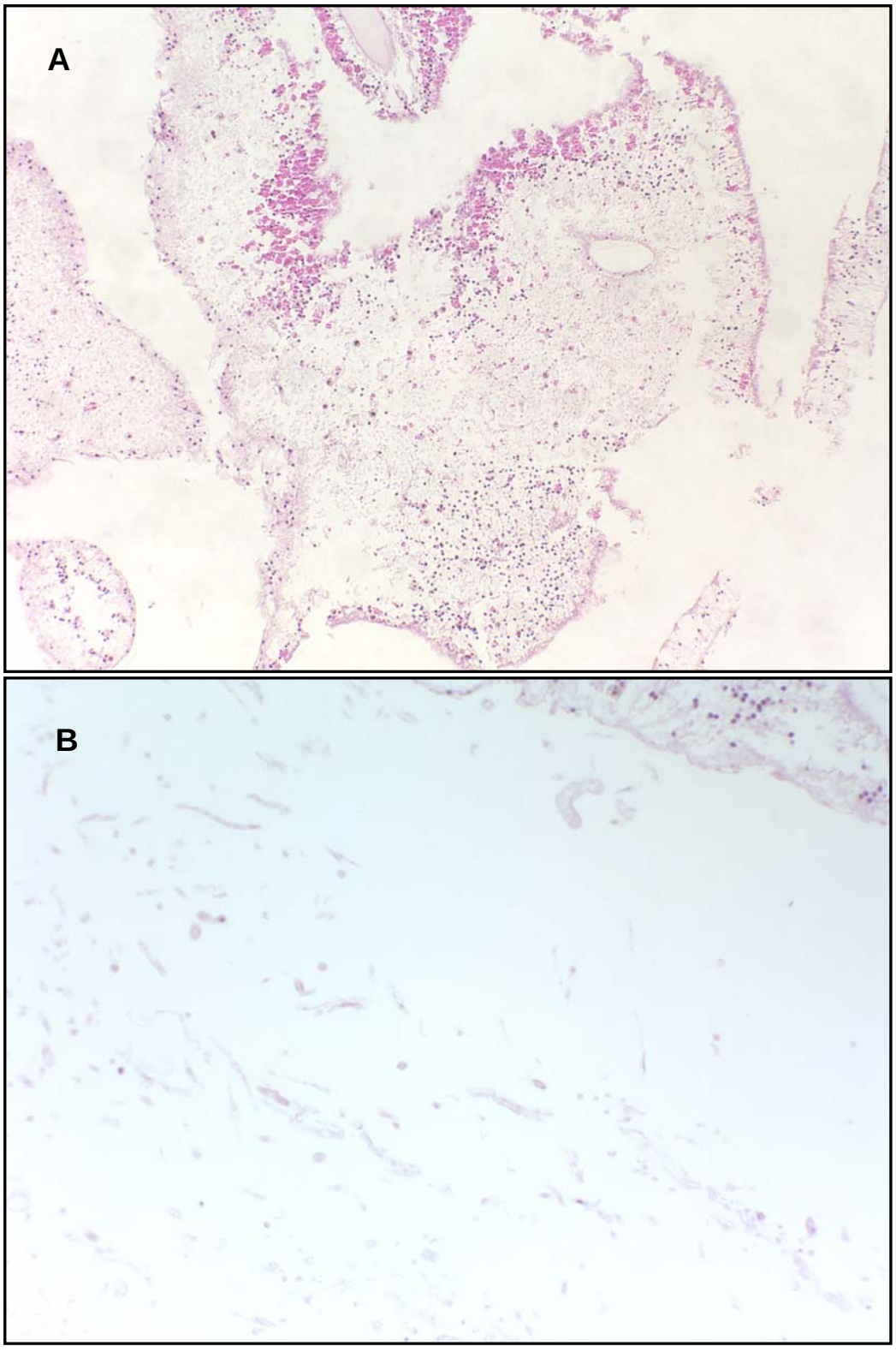

Figure 28. Photomicrograph of *Montastraea faveolata* tissue fixed in seawater:Z-Fix; **A-** 10x, unusual cut of an otherwise normal sample; **B-** 20x, sparse mats of large filamentous structures.

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Signalment/History: *Acropora prolifera* (IRCP 57) collected from Dry Tortugas, Florida on 5 June 2003 by Dana Williams and Margaret Miller.

Field Diagnosis: Sloughing tissue, no obvious diagnosis.

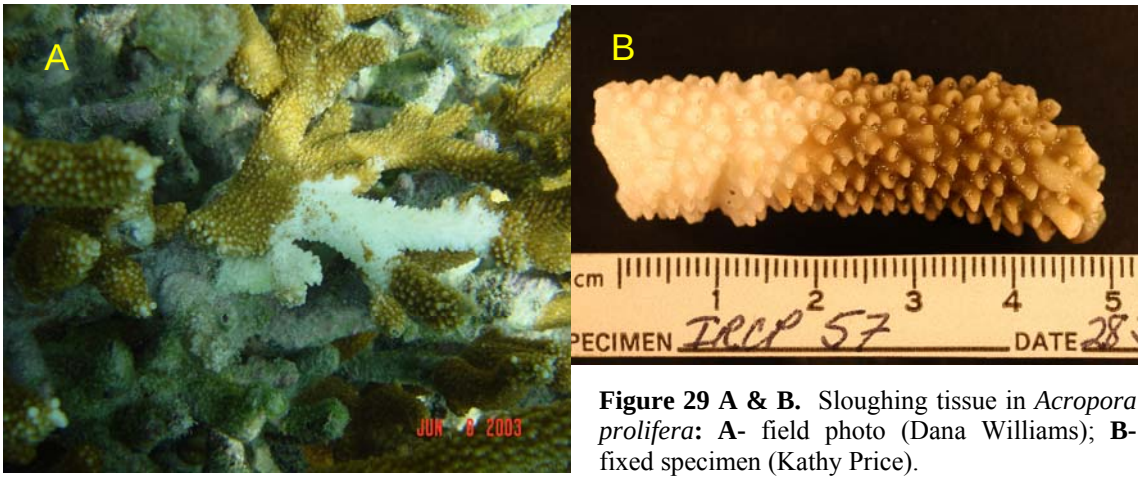

Figure 29 A & B. Sloughing tissue in *Acropora prolifera*: **A-** field photo (Dana Williams); **B-** fixed specimen (Kathy Price).

Histopathology Description (Fig. 30):

Coenenchyme: Moderate numbers of aggregates of basophilic bacilli are within the mesoglea between calicodermis and gastrodermis of the basal body wall lining gastrovascular canals (Fig. 30A, ↑). Some of the aggregates are in a space surrounded by mesoglea. There is an abrupt termination of viable tissue (full thickness) on one edge (Fig. 30B, ↑). Associated with that abrupt termination are numerous crustaceans (Fig. 30B, ►) and occasional ciliates and diatoms. Ova and spermaries are absent.

Polyp: No remarkable lesions are seen.

Skeleton: No remarkable lesions are seen.

Morphologic Diagnosis:

- Multiple bacterial aggregates located within the mesoglea of the gastrodermis and basal body wall.
- Focal acute full tissue thickness loss with associated crustacean and ciliates.
- Occasional ciliates are present within gastrovascular canals.

Recommendation: None.

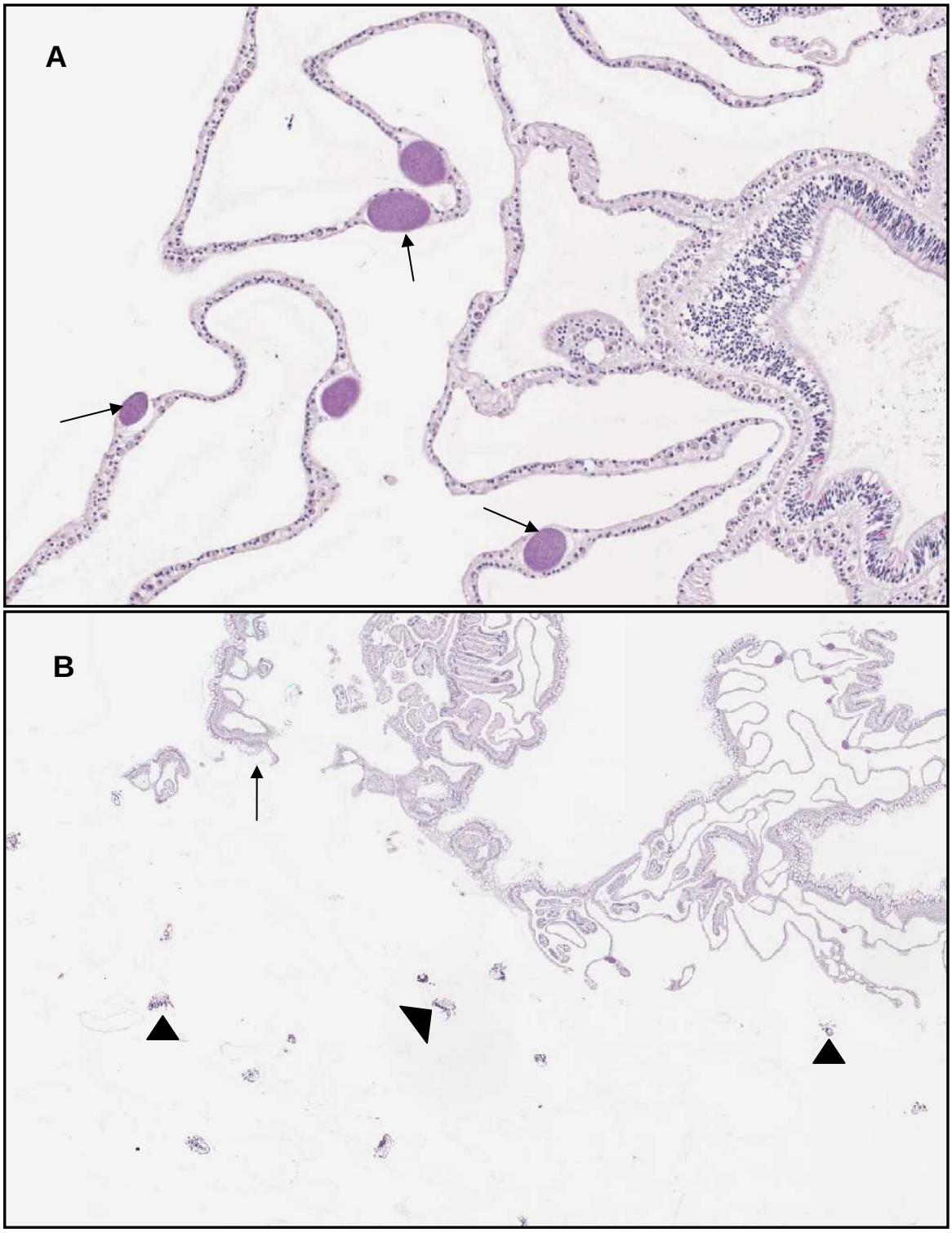

Figure 30 A & B. Photomicrographs of *Acropora prolifera* tissues fixed in seawater:Z-fix and stained with MHE: **A-** 10x, aggregates of ovoid basophilic bodies (not shown here, these are composed of basophilic rods) (↑); **B-** showing abrupt termination (↑) and crustaceans (►).

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Signalment/History: *Montastraea annularis* (IRCP 18-2) collected from Tague Bay, US Virgin Islands collected on 10 July 1980 by Esther Peters.

Field Diagnosis: Black band disease.

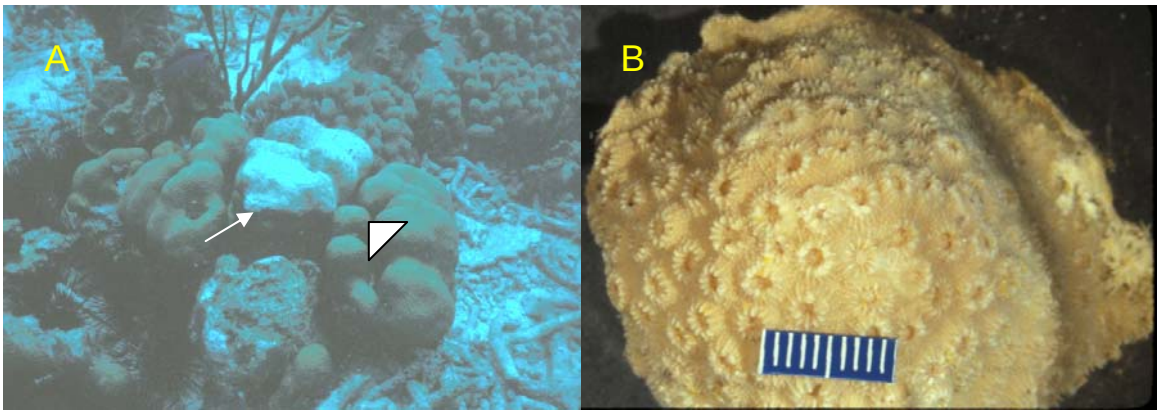

Figure 31 A & B. Black band disease in *Montastraea annularis*: **A-** field photo (Esther Peters); **B-** fixed specimen, scale =1 cm (Esther Peters); taken from area adjacent (►) to diseased tissue (↑) as shown in Fig. 31A.

Histopathology Description (Fig. 32):
(Comment: Staining quality is poor; tissue not representative of black band edge.)

Coenenchyme: No remarkable lesions are seen.

Polyp: Near one edge of the section is a large sponge (Fig. 32A, ↑). The sponge tissue is separated from the coral tissue. There numerous endolithic organisms between the sponge and coral polyp. An adjacent polyp has vacuolization of the polyp epidermis (Fig. 32A, ►); it lacks nuclei and stains pale. There is loss of integrity (Fig. 32B, ↑) exemplified by cell lysis with release of zooxanthellae.

Skeleton: Mats of non-staining wide structures with asymmetric walls and bulbous filaments are present, suggestive of endolithic fungi.

Morphologic diagnosis:

- Acute necrosis of polyps.
- A focus of endolithic fungi.

Addenda: The lesions observed were not related to black band mats.

Recommendation: None.

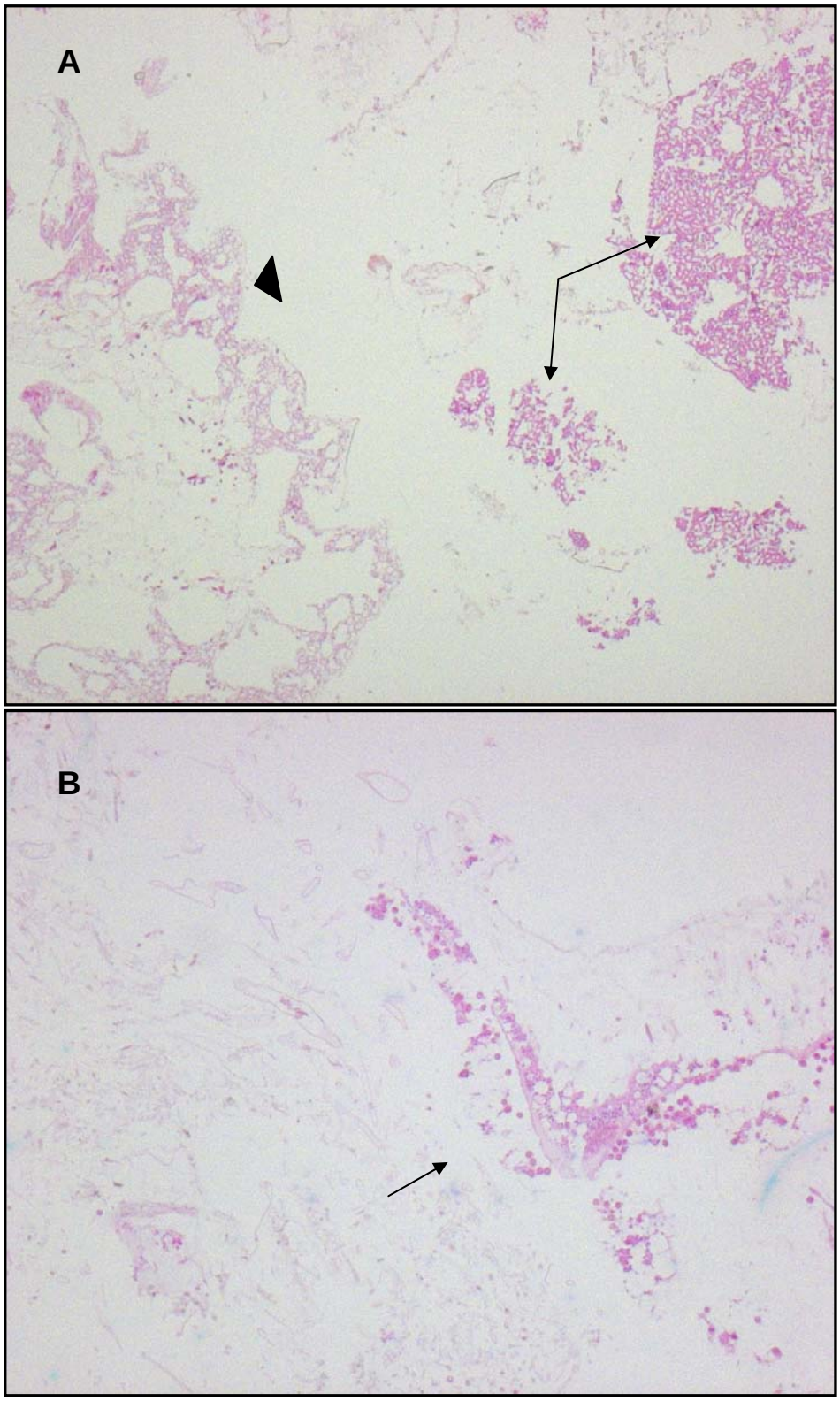

Figure 32 A & B. Photomicrographs of diseased *Montastraea annularis* tissues fixed in Helly's and stained with MHE: **A-** 4x, showing a large sponge (↑) and polyp remnant (►) along with unidentifiable debris between the sponge and polyp; **B-** 10x, polyp fragmentation (↑); abundant endolithic fungi.

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Signalment/History: *Acropora cervicornis* (IRCP 178) collected from the Virgin Islands on 15 July 2004 by Lou Sileo, Thierry Work and Caroline Rogers.

Field Diagnosis: Suspected snail predation.

Figure 33 A & B. Suspected snail predation observed on *Acropora cervicornis*: **A-** field photo (Thierry Work); **B-** fixed specimen (Kathy Price).

Histopathology Description (Fig. 34):

Coenenchyme: Full tissue thickness loss culiminates in abrupt termination (Fig. 34A, ↑). Epidermis is segmentally lost and gastrodermis is atrophied. Ova are abundant (Fig. 34B, ↑). Adjacent to intact tissue are scattered arthropods in the lumena of non-viable gastrovascular canals mixed with clumps of necrotic tissue characterized by aggregates of eosinophilic debris and karyorrhectic nuclei mixed with zooxanthellae. The deep gastrovascular canals are bereft of viable tissue, and this is more prominent at the edge of viable and non-viable tissue. There is diffuse depletion of zooxanthellae from gastrodermis. In deeper tissues, there are eosinophilic lamina (hyalinized mesoglea) sometimes associated with spiral and rod-shaped bacteria.

Polyp: Within the mesoglea of a mesentery is a single irregularly round structure with central basophilic inclusions and a central nucleus surrounded by a vacuole (40-60 µm) (Fig. 34C, ↑). Also within mesenteries, within gastrodermal cells and near ova, are round brightly eosinophilic homogenous structures about the same size as zooxanthellae (Fig. 34C, ↑). Within deep gastrovascular canals, there is multifocal disassociation of gastrodermal cells of mesentery and attenuation of calicodermis (Fig. 34D, ↑).

Skeleton: No remarkable lesions are seen.

Morphologic Diagnosis:

- Abrupt tissue loss of the coenenchyme and polyps.

- Severe diffuse reduction of zooxanthellae in the gastrodermis and coenenchyme.
- Focal sloughing of the gastrodermis and epidermis of the coenenchyme.
- Multiple eosinophilic inclusions in the tissue of the gastrodermis surrounding the oocytes.

Recommendation: None.

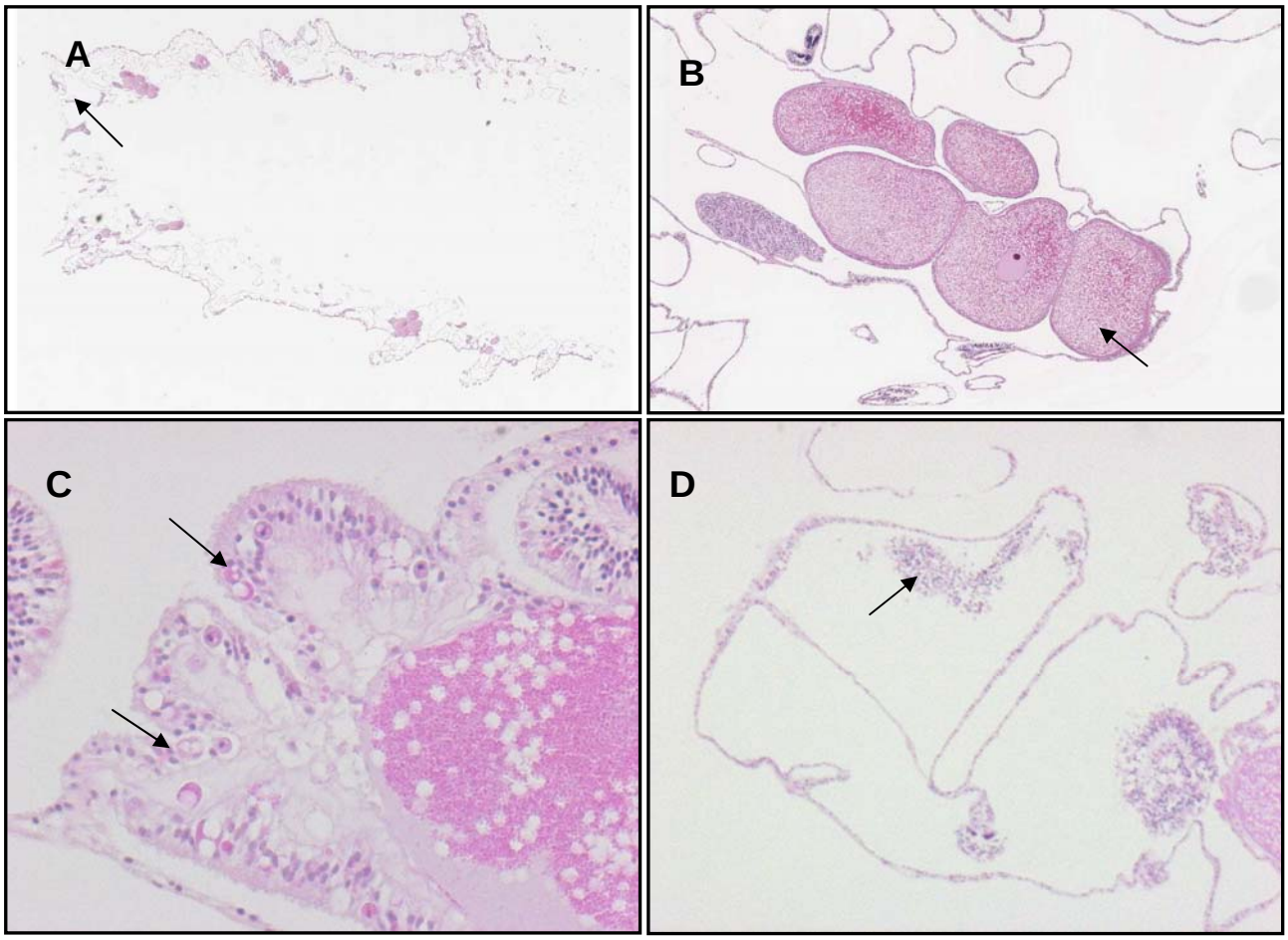

Figure 34 A-D. Photomicrographs of *Acropora cervicornis* tissues fixed in seawater:Z-fix and stained by MHE: **A-** showing abrupt termination (↑); **B-** 2x, abundant ova (↑); **C-** 40x, brightly eosinophilic structures (↑) and zooxanthellae; **D-** 10x, disassociated gastrodermal cells (↑).