

## Geometry of *Diploneis crabro*

This article explores the geometry of the outside of two valves of the diatom *Diploneis crabro*. Several optical slices were explored by measuring the depths of the slices downward through the valve from the slice closest to the objective. This is a marine naviculoid genus that was collected in Hawaii in 2015, cleaned in hydrogen peroxide, and mounted in Zrax.

*Diploneis crabro* is distinguished from other large, constricted (panduriform) *Diploneis* by having biseriate striae near the margin of the valve.

In these two valves, the stria counts fit Lobban et al. (2012) but the sizes are outside the range given. Sims (ed.) (1996 pl 78 fig 6 and pl 79 1-7) on the other hand shows a range of sizes and stria counts that include the morphometrics of these two valves. These sources seem to confirm that *D. crabro* is an accurate identification.

All images were taken with a 100x objective in bright field. Depth measurements were made with the calibrations on the fine focus knob of the Nikon Labophot-2 used here.

**Depth** is the apparent depth of an optical slice below the high focus. The author had no accurate way to measure the real depth.

**High focus** is the optical slice closest to the objective.

### PLATE 1

#### Figures 1-5

Focal planes of one valve, external view.

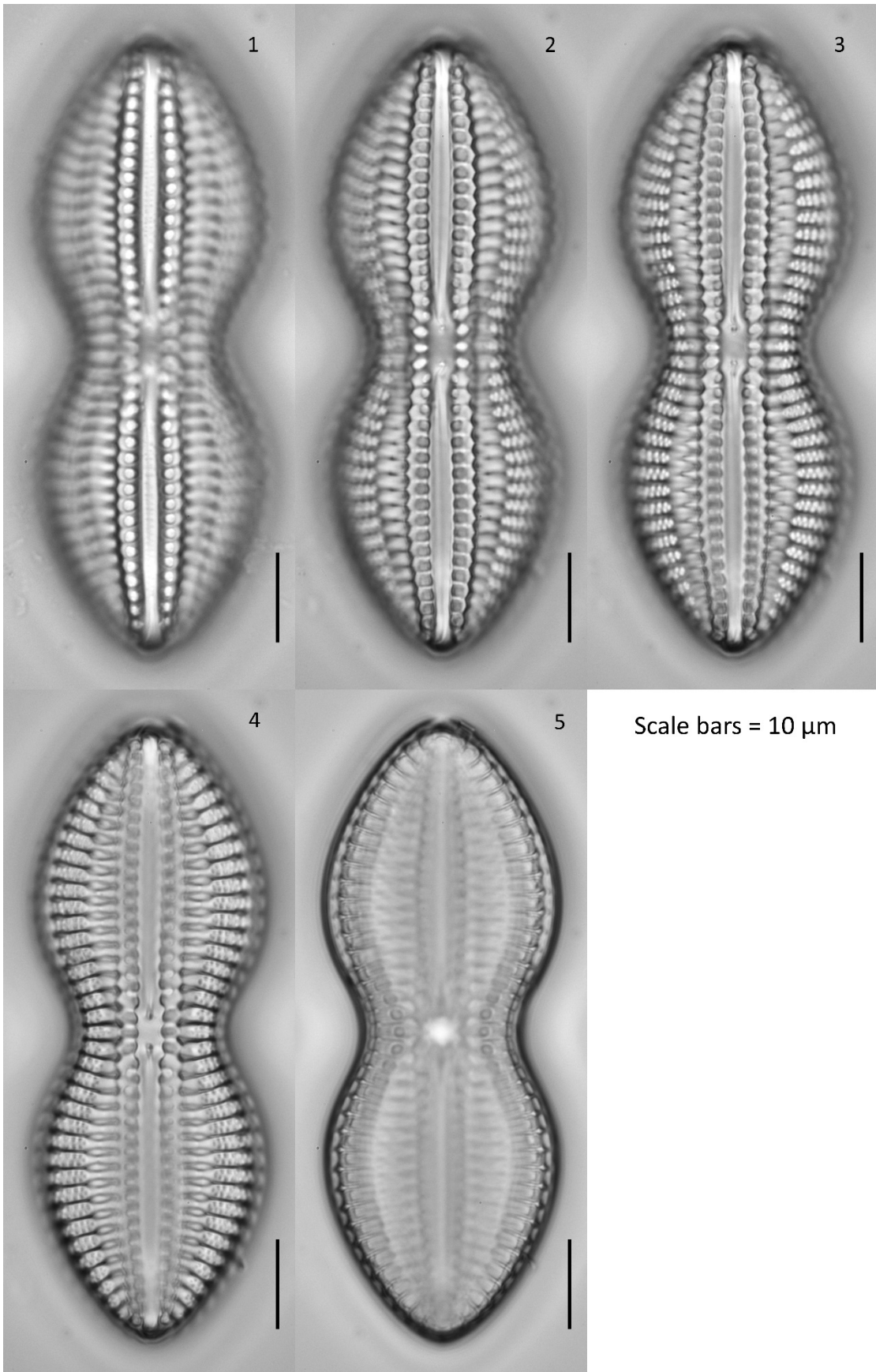
Morphometrics: length 70  $\mu\text{m}$ , width 19  $\mu\text{m}$ , striae 6 in 10  $\mu\text{m}$ .

Slide Honaunau-K, Nikon coordinates 352-946, slide catalog # 16.

Image file numbers are in parentheses.

Figure	Depth $\mu\text{m}$	Note
1	0	High focus on outside of pores in external wall of the longitudinal canal. (8212)
2	1	White spot focus on proximal and distal raphe ends. Distal raphe ends curve toward the secondary side of valve. (8213)
3	2	White spot focus on areolae of striae. (8214)
4	3	Black spot focus on areolae of striae. (8215)
5	5.5	Focus on distal ends of ribs between striae. (8216)

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**PLATE 2**

**Figures 6-10**

Focal planes of one valve, external view. This valve is tipped with the high side at the top of the image.

Morphometrics: length 121  $\mu\text{m}$ , width 31  $\mu\text{m}$ , striae 4 in 10  $\mu\text{m}$ .

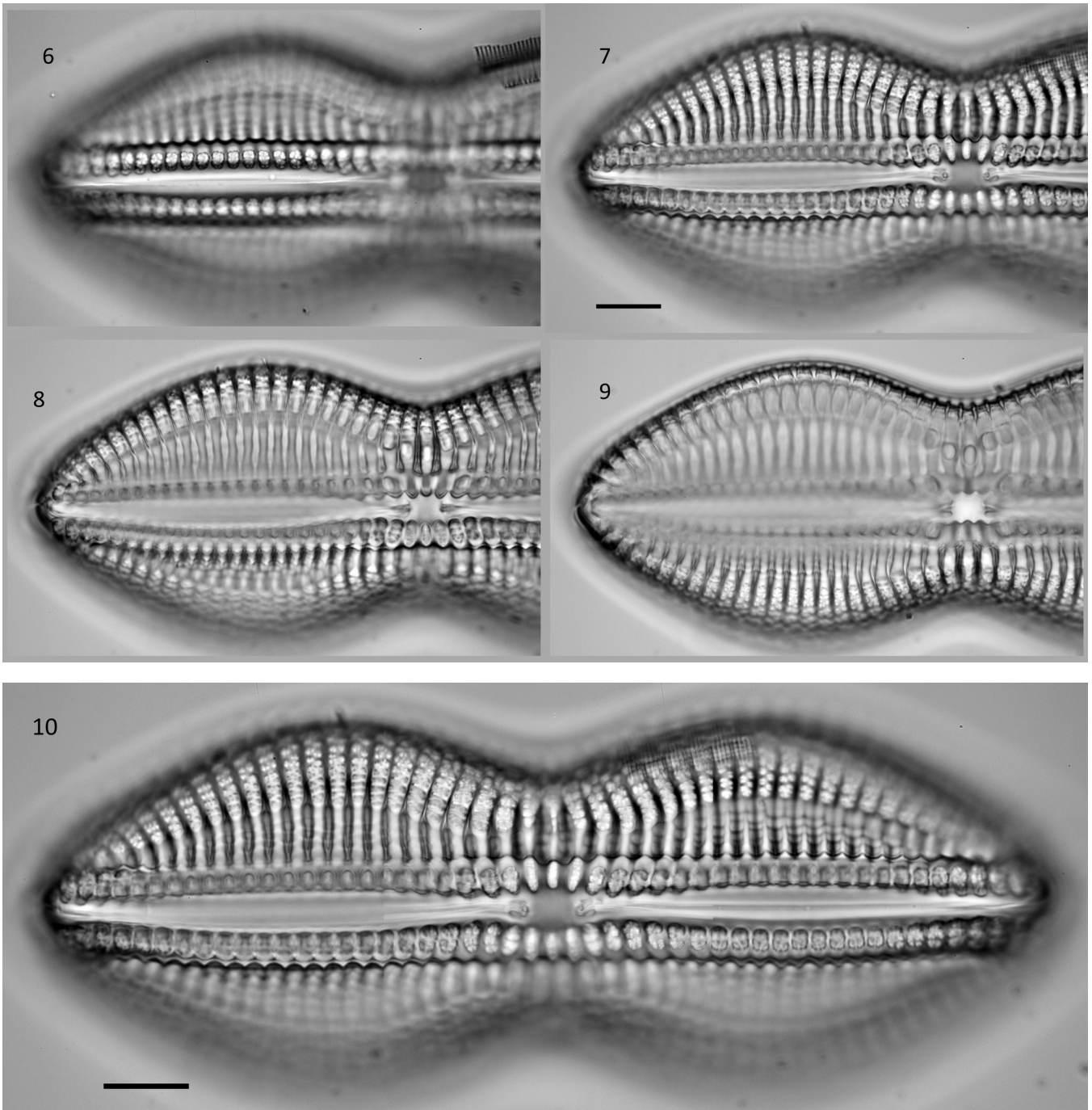
Slide Honaunau-K, Nikon coordinates 345-920, slide catalog # 5.

Image file numbers are in parentheses.

Scale bars = 10  $\mu\text{m}$ .

<b>Figure</b>	<b>Depth <math>\mu\text{m}</math></b>	<b>Note</b>
6	0	High focus on external pores of longitudinal canal. (8222)
7	1.75	Focus on curly proximal raphe ends. (8220)
8	4.5	Focus on edge of central area. (8223)
9	6.25	Focus on distal ends of ribs between striae in middle of the valve. (8224)
10	1.75	Full valve, two images stitched. Focus on curly proximal raphe ends. (8220-8221)

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**References**

Lobban, C. S., Scheffer, M., Jordan, R.W., Arai, Y., Sasaki, A., Theriot, E.C., Ashworth, M., Ruck, E.C. & Pennesi, C. (2012). Coral-reef diatoms (Bacillariophyta) from Guam: new records and preliminary checklist, with emphasis on epiphytic species from farmer-fish territories. *Micronesica* 43: 237-479.

Sims, P.A. (ed.) (1996). An atlas of British diatoms arranged by B. Hartley based on illustrations by H.G. Barber and J.R. Carter. pp. [2], 1-601, incl. 290 pls. Bristol: Biopress Ltd.

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