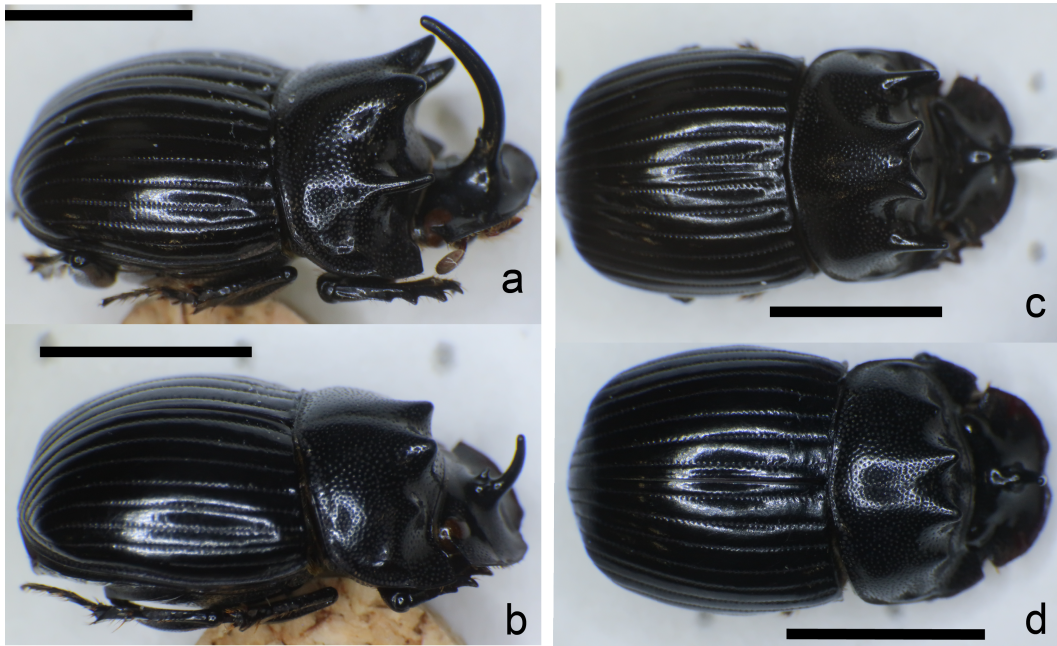
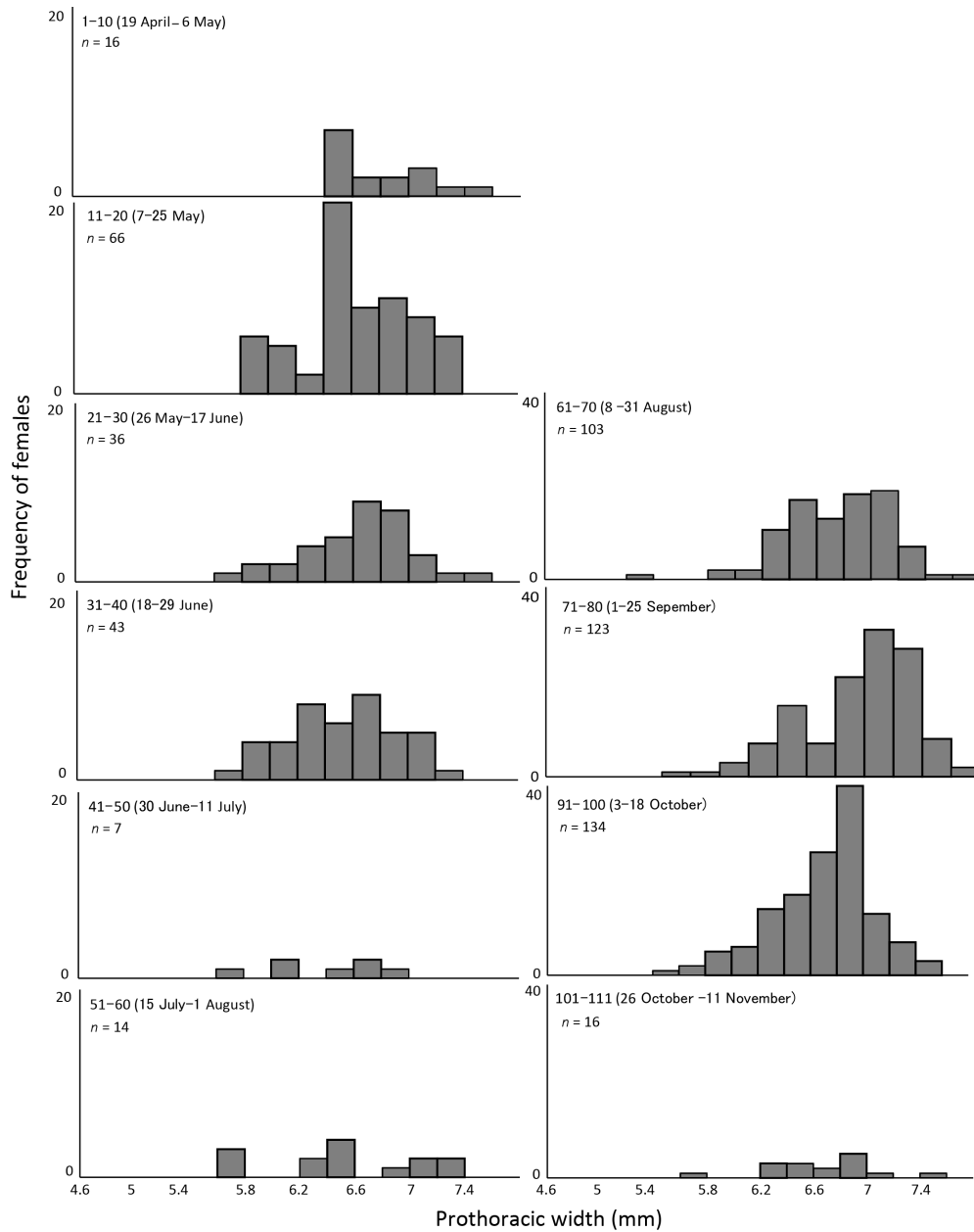


**Supplementary Fig. 1.** Horn morphologies of two male morphs *C. acutidens*. **A–B**, lateral view; **C–D**, dorsal view. Head horn length and prothoracic width of each male is 6.8 mm, 4.33 mm (A, C), and 6.3 mm, 1.87 mm (B, D), respectively.

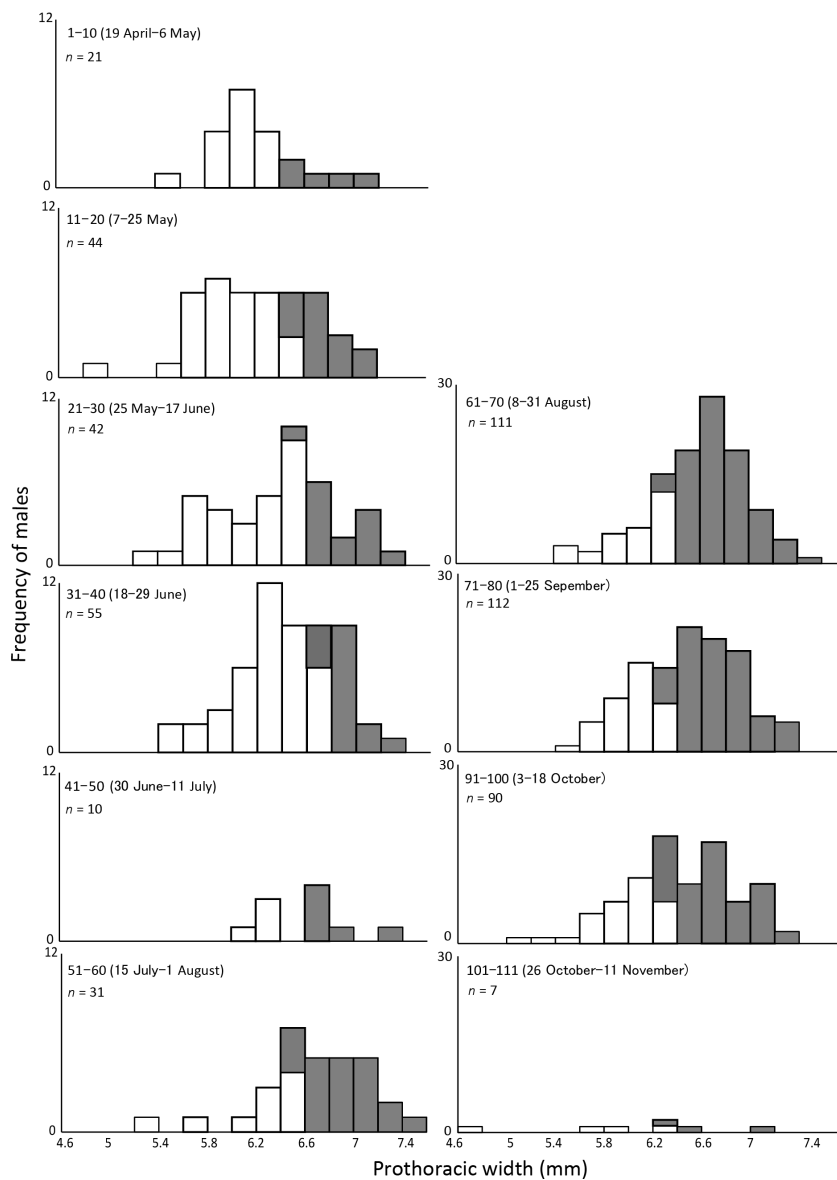
Black bars represent 0.5 mm.



**Supplementary Fig. 2.** Seasonal changes of prothoracic width in females per 10 days during each period.



**Supplementary Fig. 3.** Seasonal changes of prothoracic width in males per 10 days during each period. White and grey bars show minor and major males, respectively. Minor and major males were distinguished by a switch point calculated using the Eberhard and Gutiérrez (1991) models.



**Supplementary Fig. 4.** Seasonal changes in head horn length of males *C. acutidens* from May to June 2017 in Atsugi city, Kanagawa prefecture, Japan (35°27'N, 139°17'E). Trap number was 10 on days 1–10 and 12 on days 11–30, each baited with mixture of cow and horse dung.

