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**Field Key to Adult June Beetles (*Phyllophaga* spp.)  
Attacking Coniferous Plantations  
in Manitoba**

by  
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## FIELD KEY TO ADULT JUNE BEETLES (*Phyllophaga* spp.) ATTACKING CONIFEROUS PLANTATIONS IN MANITOBA

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### Abstract

A field key for identification of the males and females of four species of June beetles attacking coniferous plantations in Manitoba is presented.

Four species of *Phyllophaga* have caused serious damage to agricultural crops (Criddle 1918) and coniferous plantations (Prentice and Hildahl 1957, 1959) in Manitoba. These are: *nitida* (LeConte), *anxia* (LeConte), *drakii* (Kirby), and *rugosa* (Melsheimer). The first three have been reported by Ives and Warren (1965) to be the principal species damaging pine seedlings. *P. rugosa* has been reported to be very destructive in coniferous nurseries at Cass Lake, Minnesota (Craighead 1950), but is uncommon in plantations in Manitoba. Criddle (1918) reported that this species was the most abundant one in sandy soils. Since most of the coniferous plantations in Manitoba have been or will be established on this type of soil, *P. rugosa* could become a serious pest.

Luginbill and Painter's (1953) key to the nearctic species of *Phyllophaga* was used to identify over 5,000 adults. A study of these specimens reveals that certain external characters of the VII and VIII sterna of the male and female abdomen can be used to separate the four Manitoba species. The specimens shown in Figures 1 to 8 were coated with ammonium chloride sublimate to enhance these morphological features in the photographs (Jackson 1962). The following key based on these characters provides a rapid method of identifying the species without injuring live specimens in biological and population studies:

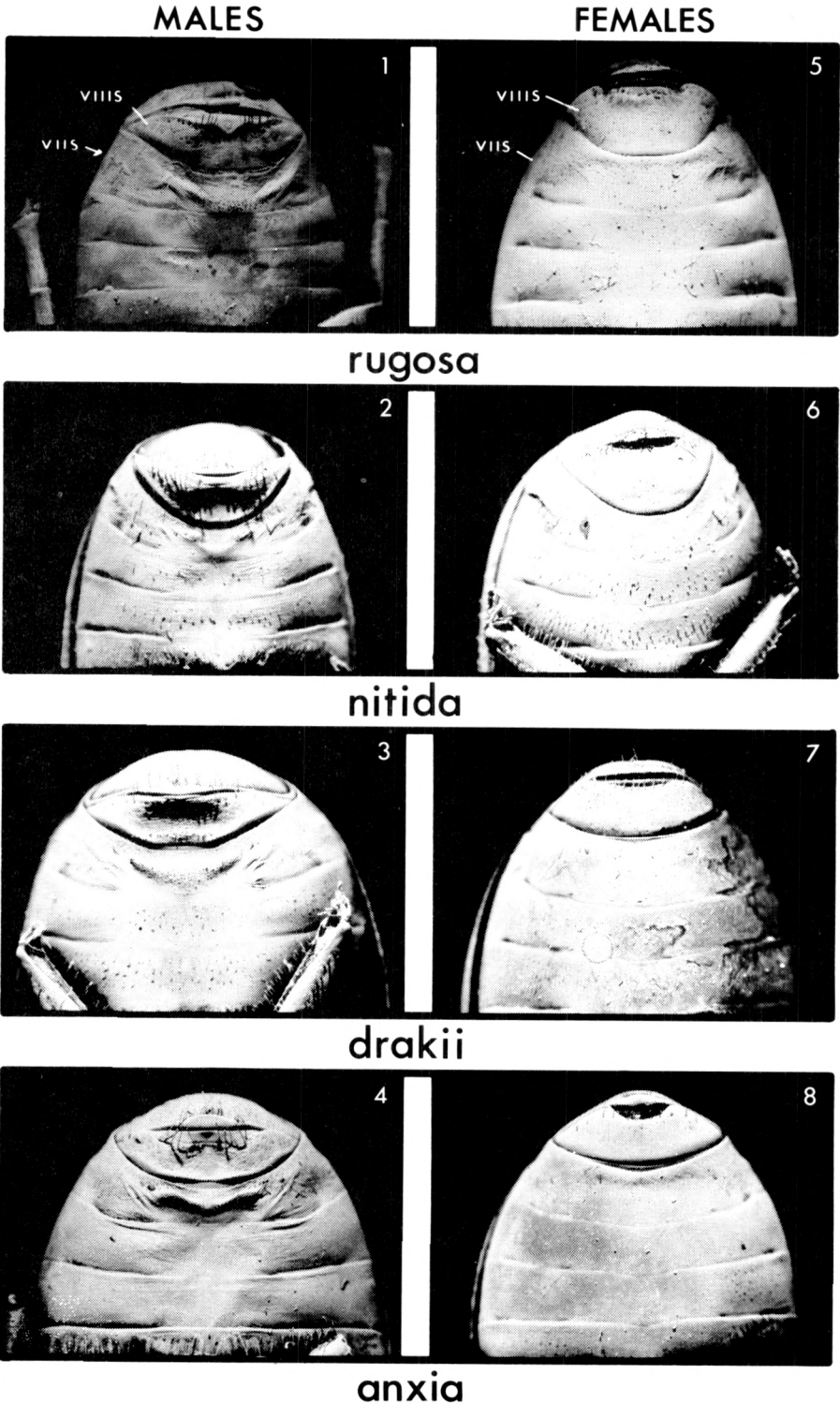
### Key to *Phyllophaga* adults attacking coniferous plantations in Manitoba

1. Ventral surface of abdomen broadly flattened and slightly depressed;  
males (Figs. 1-4) ..... 2  
Ventral surface of abdomen rounded; females (Figs. 5-8) ..... 5
2. Sternum VII with ridge near middle (Fig. 4) ..... 3  
Sternum VII with ridge at the anterior margin (Fig. 1) .....  
..... *P. rugosa* (Melsheimer)
3. Sternum VII with narrow ridge (Figs. 2, 4); sternum VIII with  
depressed area not roughened ..... 4  
Sternum VII with broad ridge (Fig. 3); sternum VIII with depressed  
area roughened ..... *P. drakii* (Kirby)
4. Ridge on sternum VII not prominent, represented by two widely  
separated humps (Fig. 2) ..... *P. nitida* (LeConte)  
Ridge on sternum VII prominent and continuous, lateral areas  
forming a ledge (Fig. 4) ..... *P. anxia* (LeConte)

- |    |  |                            |
|----|--|----------------------------|
| 5. | Posterior border of sternum VII deeply concave (Fig. 5, 6) .....   | 6                          |
|    | Posterior border of sternum VII shallowly concave (Figs. 7, 8) ....  | 7                          |
| 6. | Posterior border of sternum VIII with indentation truncate (Fig. 5)<br>..... <u>P. rugosa</u> (Melsheimer) |                            |
|    | Posterior border of sternum VIII with indentation not truncate<br>but shallowly concave (Fig. 6) .....     | <u>P. nitida</u> (LeConte) |
| 7. | Posterior border of sternum VIII with indentation deeply and<br>narrowly concave (Fig. 8) .....            | <u>P. anxia</u> (LeConte)  |
|    | Posterior border of sternum VIII with indentation shallowly and<br>widely concave (Fig. 7) .....           | <u>P. drakii</u> (Kirby)   |

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Figs. 1 - 8. Venters of adult Phyllophaga. Abbreviation S, sternum.