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## To select native wild bees as pollinators of Alfalfa (*Medicago sativa*) in Hexi Corridor

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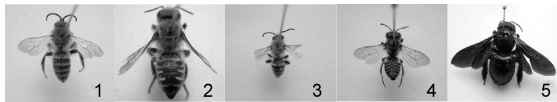
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**Key words:** *Medicago sativa*, Hexi Corridor, native wild bee, pollinators, tripping, diurnal foraging activity

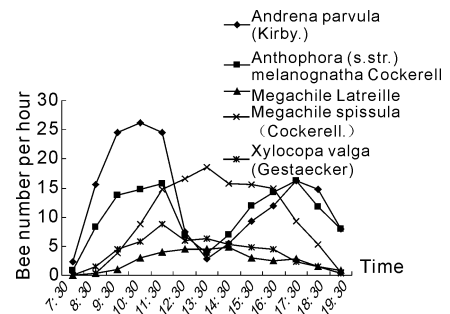
**Introduction** Pollinators are very important for alfalfa seed production, since alfalfa (*Medicago sativa* L.) must be tripped to produce seed. Honey bees are frequently ineffective in tripping flowers, whereas leafcutter bees are far more efficient. Although many wild bee species live in natural and semi-natural habitats, most of them are unknown and are not systematically studied. Consequently, intensified research on native wild bee pollinators is essential to develop practical solutions to the pollination problem of alfalfa in Hexi Corridor, Northwest China.

**Materials and methods** This study was carried out in Hexi Corridor (39°21'N, 100°07' E, altitude 1367m) from 2005-2007. The insect visitors to the *M. sativa* flowers were observed and were captured with sweep nets and taken to the laboratory for identification. Only those wild bees involved with the tripping mechanism were selected for investigation.

**Result and discussion** At least 20 insect taxa, including 12 species of hymenopteran, 5 species of lepidopteran and 3 species of coleoptera, were observed to visit the *M. sativa* flowers. Some were observed to either feed on nectar or actively collect pollen. Wild bees accounted for 85% of the visitors, including individuals of 7 taxa. Among these, *A. parvula*, *A. melanognatha*, *M. Latreille*, *M. spissula* and *X. valga* were selected as principle pollinators (Figure 1). There were significant differences among the different native bee taxa in diurnal distribution patterns (Figure 2). (data based on the five principle bees;  $P < 0.001$ , data not show)



**Figure 1.** 1. *A. parvula*, 2. *M. Latreille*, 3. *A. melanognatha*, 4. *M. spissula*, 5. *X. valga*



**Figure 2** Diurnal foraging activities different bees visiting alfalfa.

**Conclusions** Results indicated a more complicated insect diversity regarding alfalfa than is commonly assumed. Further studies are required on native wild bees' diversity to develop better understanding of the complex pollination system and seed production.

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