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A morphologically specialized soldier caste improves colony defence in a Neotropical eusocial bee

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Physical castes are well known in ants and termites, but until now there has been no equivalent example in social bees or wasps. Here we report the first eusocial bee with a physical soldier caste. In the neotropical stingless bee *Tetragonisca angustula*, nest-defence is performed by guards which hover near the nest entrance or stand on the wax entrance tube. These are highly specialised compared to most other social bees in that they guard the entrance for a long period of their life and show exceptional abilities to detect intruders. We show that guards are 30% heavier than foragers and of different shape: foragers have relatively larger heads and wings, while guards have wider legs. These guards or soldiers are reared in low numbers, but benefit the colony via their superior ability to fight workers of the obligate robber bee *Lestrimellitta limao*, an important natural enemy of *T. angustula* colonies.