



♂緬甸DA。75 mm。1998。標本陳俊秀提供  
*D. antaeus* from Myanmar. Dried specimen provided by Jason Chen

75 mm以上的雄蟲才看得出來。如果是中、小型個體的話，大顎也是彎彎短短的。

從繁殖的角度上也可以明顯地感覺到DA與*curvidens*的差異。後者雌蟲偏好硬朽木，並且喜歡把卵產在距離朽木表皮約5 mm深的地方。DA則喜歡在發酵木屑和中朽木的交接處把產卵木咬成木屑，然後把卵產在木屑堆中。最理想的DA產卵環境如下：

1. 在飼育容器底部壓滿10 cm深的發酵木屑。
2. 在發酵木屑表面橫放兩根中或軟朽木。
3. 用一般朽木屑將產卵木覆蓋至2/3處。

DA的產卵量非常龐大，一生可產100顆以上。第一次看見DA卵的蟲友可能會嚇一跳，因為它非常小粒，很難相信最大型的大鋤形蟲的卵竟然比小型鋤形蟲的還小顆。不過俗話說得好，真是人不可貌相，這小小一顆不起眼的卵將會發育成頭殼最大，身軀可以輕易破



♂DA雌蟲。48 mm。活體戴為愚 (Gekko) 提供。2007  
*D. antaeus* female. Live specimen provided by Dai Wei-yu

*D. antaeus* and *D. curvidens* also differ in breeding behavior. Whereas *D. curvidens* prefers hard decayed wood, *D. antaeus* prefers middle decayed wood. *D. curvidens* oviposits near the surface of the decayed wood. In the region where the decayed wood meets the substrate, *D. antaeus* chews up the wood and oviposits in the flakes produced. Following is recommended breeding tank setup:

1. Compress 10 cm of fermented decayed wood flakes at the bottom of the container.
2. Place two middle decayed wood on the surface of the substrate.
3. Add regular decayed wood flakes until the logs are 2/3rd covered.

*D. antaeus* is capable of laying more than 100 eggs. Interestingly, for its size, *D. antaeus* produces very tiny eggs. But these eggs eventually become giant larvae over 40 grams. Eggs take about 21-30 days to hatch. After hatching, some larvae burrow into decayed wood. The best time to retrieve the



40公克的大型幼蟲。DA卵期21-30天，部分幼蟲孵化後鑽入產卵木。收成的最佳時機為雌蟲放入產卵箱兩個月後，此時幼蟲最大二齡，不過也有採集到卵的可能。幼蟲可用發酵木屑或是菌絲飼養。吃菌長大的幼蟲平均比吃木屑的來得大。從孵化到轉三齡幼蟲需要3-5個月，算是偏慢的大锹形蟲。大部分的雄性幼蟲孵化10-16個月後化蛹，少數幼蟲拖到20個月。雌性幼蟲期6-12個月。前蛹期和蛹期都是21-35天。蟄伏期1-3個月。開始活動至少半年後再讓新成蟲進行交配繁殖。開始活動後成蟲可活18-36月。

由於DA來自於海拔1000-2000公尺的山區，因此相當不耐熱。理想飼育溫度為20-24度。夏天用菌絲瓶飼養時務必控溫。有許多蟲友在冬季時順利地將DA幼蟲養到30公克，但初夏來臨時卻因無溫控設備，結果幼蟲全軍覆沒。最高體重達39公克的幼蟲有機會羽化成80mm的成蟲。最高體重達17公克的雌性幼蟲有機會羽化成50mm的成蟲。

larvae is two months after the female was placed in the breeding tank. At this time most larvae are second instar. However, the presence of eggs is possible. Larvae can be reared with fermented decayed wood flakes or kinshi bottles. On average, larvae reared with kinshi bottles become bigger adults. L1-L3 takes 3-5 months. Most male larvae pupate 10-16 months after hatching. Some males take up to 20 months. Female larval duration 6-12 months. Both pre-pupa period and pupa period are 21-35 days. New adults stay inactive for 1-3 months after eclosion. Allow new adults to become active for at least 6 months before breeding. Once active, adults live 18-36 months.

Because *D. antaeus* is found in mountainous regions 1000-2000 meters above sea level, it is intolerant of heat. The ideal temperature range is 20-24°C. This species is definitely not recommended for the environment that reaches 30°C. Larvae with a maximum weight of 39 grams may become 80-mm adults. Female larvae with a maximum weight of 17 grams may become 50-mm adults.



↗雌蟲產卵時喜歡把中朽木咬成木屑。2006  
Females chew middle decayed wood into flakes to oviposit.



↗1400 cc菌絲包中的三齡幼蟲。  
Third instar larva in 1400 cc kinshi bag.

↓ 野生原名亞種雄偉大锹形蟲。左邊個體大顎末端明顯磨損，這是因為大锹形蟲有啃咬朽木的習慣，目的是為了藏身。左二個體80 mm。右邊個體70 mm。寮國。1998。標本陳俊秀提供

Wild *D. g. grandis*. Left individual with abraded mandibles from chewing on decayed wood for hiding. Left two 80 mm. Right 70 mm. Laos. Dried specimens provided by Jason Chen



# 雄偉 (寮國) 大锹形蟲

*Dorcus grandis*



← 守谷氏雄偉大锹形蟲。印度。  
80 mm。2005  
*D. g. moriyai* male, India

如果 *D. curvidens* 是大锹形蟲，那現在要介紹的種類就是大锹形蟲中的大锹形蟲了。也因此，此種在寮國被發現後於1926年以 *Dorcus grandis* 發表，直譯是「雄偉大锹形蟲」。*D. grandis* 是體型非常壯碩的大锹形蟲。除了雄蟲可達90 mm之外，其前胸背板也是所有大锹形蟲中比例最寬的。唯獨比較可惜的是，此種的牙型不會出現傳統 *D. curvidens* 會出現的「大齒型」，也就是齒突往前斜出。即使是80 mm的大型個體，齒突也只是微微向前。以日本大锹和中國大锹而言，60 mm的個體即出現大齒型。但 *D. grandis* 的60 mm個體齒突位置肯定沒有到大顎的一半，並且還是呈現往後斜的情形。即使是70 mm的個體，兩齒突末端也只是水平相對。*D. grandis* 發表以後有分類學家把台灣

*Dorcus grandis* is the largest *curvidens*-like stag beetle. Males can top 90 mm and develop a very wide pronotum. However, interestingly, this species is unable to develop its mandibles to the extent that *D. curvidens* can; proportionally, this species' mandibles don't get as long and the denticles never point forward. For *D. c. binodulosus* and *D. c. hopei*, individuals as small as 60 mm begin to develop major mandibles. But for a 60-mm *D. grandis*, the placement of the denticles is before the mid-points of the mandibles and the denticles incline backwards. After the description of *D. grandis* in 1926, some taxonomists reclassify *D. curvidens formosanus* from Taiwan as *D. grandis formosanus*. However, *formosanus* is unable to achieve *D. g. grandis*' grandeur stature, with 82 mm being the



↗雖然這隻原名亞種雄偉大锹已是破80 mm的大型個體，但其齒突還是沒有往前斜出。寮國。2000  
Although this is a *D. g. g.* male over 80 mm, the denticles are still facing each other, not inclined towards the front. Laos



↗原名亞種雄偉大锹的前胸背板兩側前端沒有圓形突起物。80.5 mm。寮國。2000  
The front edges of the pronotum of *D. g. g.* don't grow circular protrusion. Laos



大鍬形蟲重新分類為*D. grandis formosanus*，因為有些個體的外形酷似原名亞種，只是體型上目前紀錄為82 mm，和90 mm仍有一些差距。*D. grandis grandis*除了牙型「保守」之外，另外一個特徵為前胸背板兩側前方有明顯的缺角，而台灣大鍬族群中卻同時擁有*grandis*型(有缺角)和*curvidens*型(無缺角)兩種形態。*D. grandis*在2005年時又多增加了一個亞種*D. grandis moriyai*，於緬甸被發現。此亞種蟲外有蟲、天外有天，震驚了鍬界，因為牠的平均體型比寮國原名亞種還更碩大2 mm。此亞種的牙型和原名亞種一模一樣，唯一差別為前胸背板兩側前方沒有缺角，外觀和*curvidens*相同。

*Grandis*大鍬在台灣簡稱為DGG (寮國、越南、中國) 以及DGM (印度、緬甸)。牠們是所有大鍬形蟲中最難養出大型個體的，而且一定要用菌絲，用發



守谷氏雄偉大鍬形蟲雌蟲。印度。50 mm。2007  
*D. g. moriyai* female. India



原名亞種雄偉大鍬形蟲。寮國。80 mm。2005  
*D. g. grandis* male. Laos

current record. In 2005, a new subspecies of *D. grandis* was discovered in Myanmar. It was given the name *D. g. moriyai*. This variety shocked the stag beetle community, as it is on average 2 mm bigger than the nominate variety. The two varieties differ in that the front edges of *D. g. grandis*' pronotum are concave whereas those of *D. g. moriyai* are convex.

The only way to get big adults out of *D. g. g.* and *D. g. m.* is with kinshi bottle. Fermented substrate only produces 50-mm adults at best. Even kinshi bottle cannot guarantee an 80-mm adult. *D. grandis*' breeding tank is setup like that of *D. curvidens*. In recent years, many Japanese hobbyists place



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don't



↗ 硬朽木中的卵。活體戴為愚 (Gekko) 提供。2002  
Eggs in hard decayed wood. Live specimens provided by Dai Wei-yu



↗ 剛入菌絲杯的一齡幼蟲。活體戴為愚 (Gekko) 提供。2002  
First instar larva in kinshi cup. Live specimen provided by Dai Wei-yu



↗ 菌絲杯中的二齡幼蟲。活體戴為愚 (Gekko) 提供。2002  
Second instar larva in kinshi cup. Live specimen provided by Dai Wei-yu



↗ 菌絲瓶中的前蛹。活體戴為愚 (Gekko) 提供。2002  
Pre-pupa in kinshi bottle. Live specimen provided by Dai Wei-yu

酵木屑養出來的竟然只有40-50 mm。即使用菌絲也不能保證80 mm個體。*Grandis*的採卵方式和*curvidens*的一模一樣，但近年來許多日本飼育家為了讓幼蟲一出生便吃菌（因為*grandis*一定要吃菌才長得大，而越早吃菌往後則長得越大），於是直接在產卵箱中埋入整塊的菌磚或是大罐的菌絲瓶，讓母蟲直接鑽入產卵。在以往的觀念中，幼蟲都是到了二齡才入菌，一來是害怕一齡幼蟲太瘦弱，無法承受突然由木屑變成菌絲的

lid-free kinshi bottles in *D. grandis*' breeding tanks for females to oviposit in. As previously mentioned, kinshi bottle is the only way to get big adults out of *D. grandis*. And the sooner larvae start eating kinshi, the bigger they become. In the past, larvae are not placed in kinshi bottles until they are second instar. This was to prevent tiny first instars from having to deal with the shock caused by environment change. However, if a female oviposits in a kinshi bottle, then there is no issue of first instar larvae hav-



衝擊，二來是怕嬌小的身軀被菌絲給消化掉。但如果直接就讓母蟲把卵產在菌絲中，幼蟲則孵化後的第一口食物便是菌絲，完全免除了先適應木屑，後又要適應菌絲的風險。但母蟲不見得喜歡在菌磚(瓶)中產卵，因為不論之前再怎麼用力地壓擠過，菌磚的硬度還是遠遠不及產卵木。如果沒有一定要雌蟲產卵於菌中，不妨也在產卵箱中放入一些產卵木。也許會有蟲友心想：那就早一點開挖產卵木，再將卵粒放入菌中。這也是一個方法，但是要從硬朽木中取出鍬形蟲的卵有相當的風險。1.硬朽木經過多隻幼蟲蛀成中空狀態以後相當好剝開，但是要剝開實心的硬朽木一不小心就會把卵挖破，而且相當費時。2.鍬形蟲的卵不但比兜蟲的小顆許多，而且顏色又和朽木相同，相當難發現。3.鍬形蟲的卵比兜蟲的脆弱，一旦從原環境取出後，孵化率並不如兜蟲的。

*Grandis*的卵期20-30天。雄性幼蟲期10-12個月，即使是破80 mm的個體都可以在這個範圍內羽化。雌性幼蟲期7-10個月。以優質菌絲瓶飼養的幼蟲，孵化3個月後就可達25公克、5個月後達38克。最高體重達35公克的幼蟲有機會破80 mm。25公克左右的個體羽化成大約70 mm的成蟲。雌蟲方面，幼蟲孵化3個月後可達14公克。最高體重達15公克的幼蟲有機會破50 mm。本種分佈海拔標高為1000-2000公尺，再加上是需要菌絲飼養的種類，夏季時務必控溫於26度以內、理想溫度為22度。前蛹期15-30天。蛹期21-30天。蟄伏期1-2個月。

ing to adjust from wood to kinshi. The only drawback is, females don't always oviposit in kinshi bottles. This is because the density of kinshi bottles is not as high as that of hard decayed wood. If having females ovipositing in kinshi bottles is not a must, hard decayed wood should also be placed in the breeding tank. Some hobbyists may think: "Why don't I dig out the eggs and place them into kinshi bottles?" This is doable, but there are risks. 1. Hard decayed wood hollowed out by larvae is easy to break open. Solid decayed wood with only eggs is very difficult to open. The process takes a lot of time and eggs are easily injured. 2. Stag beetle eggs are much smaller than rhinoceros beetle eggs. Their color is also identical to decayed wood, making them very difficult to spot. 3. Stag beetle eggs are more delicate than rhinoceros beetle eggs. Their hatching rate is much lower if removed from original substrate.

Egg duration is 20-30 days. Larval duration for males is 10-12 months. Even 80-mm individuals are able to eclose in this time frame. Larval duration for females is 7-10 months. With high quality kinshi, male larvae become 25 grams three months after hatching, 38 grams five months after hatching. Larvae with a maximum weight of 35 grams may become adults over 80 mm. Larvae with a maximum weight of 25 g become adults around 70 mm. Female larvae become 14 grams three months after hatching. Female larvae with a maximum weight of 15 g may become adults over 50 mm. *D. grandis* is found in mountainous regions 1000-2000