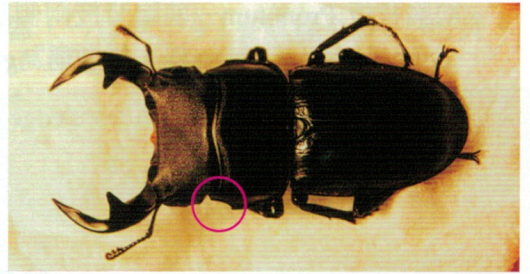




台灣大锹形蟲 *Dorcus curvidens formosanus*

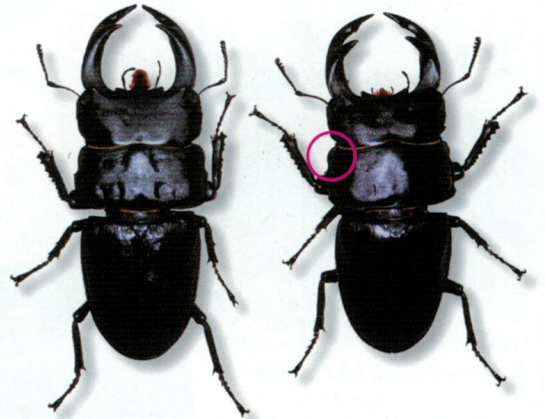


♂號稱全日本第一隻破80 mm的台灣大锹形蟲人工飼育個體。1999年攝於日本仙台。活體鈴木貴夫提供
This individual is believed to be the first captive-bred *D. c. formosanus* over 80 mm. Live specimen provided by Takao Suzuki



♂*grandis*型的台灣大锹形蟲，可見前胸背板兩側前端無圓形突起物。52 mm。1997

grandis type *D. c. formosanus*. As you can see, the front edges of the pronotum do not have a circular protrusion.



♂左為72 mm日本大锹，右為69 mm *curvidens*型台灣大锹。可看見台灣大锹的大顎比較彎曲，齒突也比較靠近大顎根部。1997

Left is 72-mm *D. c. binodulosus*. Right is 69-mm *curvidens* type *D. c. formosanus*. Notice *formosanus* has curvier mandibles with denticles closer to base.

◆產地 Distribution：台灣 Taiwan

◆分辨方法 Characteristics：

大顎 Mandibles—大顎為亞種中最短以及末端彎度最大者。齒突為亞種中最接近根部者。70 mm以上個體齒突通常往前斜出。60 mm以下個體齒突相對。

Shortest. Greatest curvature. Denticles closest to the base. Denticles of individuals above 70 mm usually incline forward. Denticles of individuals under 60 mm point to each other.



頭部 Head—頭部中央長度比前胸背板中央長度短。

The vertical length at the middle of the head is shorter than the vertical length at the middle of the pronotum.

前胸背板 Pronotum—前胸背板兩側前端有或無圓形突起物。有者稱為*curvidens*型。無者稱為*grandis*型。

Each front edge with or without circular protrusion.

各亞種雌蟲 Females of Various Subspecies



↙ 日本大鍬形蟲雌蟲。45 mm。2007
D. c. binodulosus female.



↑ 彎角大鍬形蟲雌蟲。44 mm。2007
D. c. curvidens female.



↑ 翅鞘上的縱向條紋特別明顯。
Conspicuous vertical stripes.

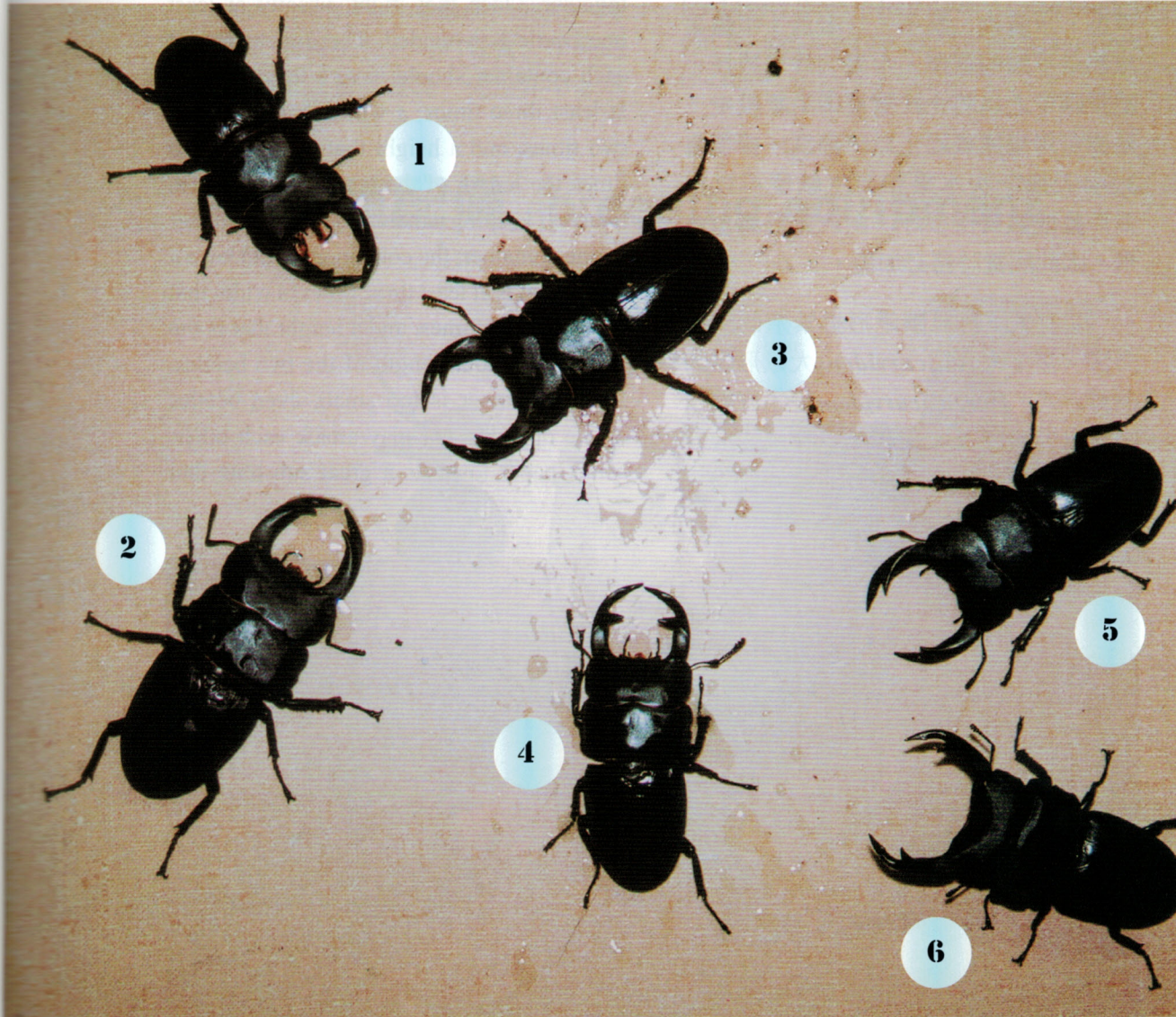


↙ 台灣大鍬形蟲雌蟲。48 mm。2007
D. c. formosanus female.



↙ 中國大鍬形蟲雌蟲。46 mm。2007
D. c. hopei female.

介紹完各亞種後，接下來介紹此種以及所有其他锹形蟲成蟲的飼養方式。跟兜蟲一樣，锹形蟲的成蟲也非常好養。飼養成蟲時，若不打算繁殖，需要注意的只有空間、食物、濕度，以及攀抓物。由於絕大部分的锹形蟲不論雌雄都有強烈的地域性，因此同性的個體應該分開飼養。不管是雄對雄或是雌對雌，一旦開戰，後果幾乎都是至少有一方受傷。適合單養锹形蟲的容器，一樣是至少1隻成蟲全長的3倍長、



↑ 1.日本大锹形蟲。64 mm。1997
D. c. binodulosus.

2.日本大锹形蟲。72 mm
D. c. binodulosus.

3.台灣大锹形蟲。69 mm
D. c. formosanus.

4.彎角大锹形蟲。62 mm
D. c. curvidens.

5.日本大锹形蟲。66 mm
D. c. binodulosus.

6.日本大锹形蟲。64 mm
D. c. binodulosus.

2倍寬，以及2倍高。若是1雄、1雌一起飼養，容器大小至少要有2隻成蟲加起來的體長的3倍長、2倍寬，以及同倍高。空間太過於狹窄就算是異性都會打起來。容器內部可鋪幾層微濕的衛生紙提供成蟲攀抓表面。食物方面，蘋果、香瓜、水蜜桃、梨子、哈密瓜、甲蟲果凍都是不錯的選擇。水果切片可放在小塑膠碟子上以防止汁液被衛生紙吸走。果凍可用果凍臺固定以防翻倒。接著每3、4天換一次水果和衛生紙便可以把锹形蟲成蟲養得很好。由於锹形蟲也會飛，因此飼養時務必加蓋。

以上是不打算讓锹形蟲繁殖的飼養方法。接下來介紹*curvidens*大锹形蟲的飼育方式。*Dorcus curvidens*好不好繁殖呢？以卵數而言，只要給予適當的環境

Like rhinoceros beetles, stag beetle adults are also very easy to keep. If there is no intention to breed them, only space, food, humidity, and grasping surfaces are needed. Because most stag beetles are territorial, individuals of the same sex should not be kept together. Once they fight, usually at least one beetle is wounded. The dimensions of each container should have a length that is at least three times, a width that is at least two times, and a height that is at least two times the length of the beetle it is going to house. If keeping a male and female together in one container, the container should have a length that is at least three times, a width that is at least two times, and a height that is the same as the total length of the two beetles. If the container is too small, even beetles of the opposite sex may attack each other. Moist paper towel is a great substrate that



理想的飼養環境。容器中為中國大锹形蟲。72 mm。2007
Ideal keeping tank. Pictured is *D. c. hopei*.



以及餌食，*curvidens*大锹形蟲很容易大量產卵。至於幼蟲，跟所有锹形蟲幼蟲一樣，若只是要把牠們養活至化蛹相當容易，但要養成大型個體則需要一些比較特別的照顧。

我們先從如何讓雌蟲產卵開始。雌蟲產卵之前需要有足夠的營養。水果的汁液雖然可以養活雌蟲，但是其中並不

can provide both humidity and grasping surfaces. As far as food goes, apple, cantaloupe, peach, pear, honeydew melon, beetle jelly are all great choices. Fruit slices should be placed on a little dish to prevent paper towels from sucking away all the juice. Replace food every three to four days. As stag beetles can fly too, a secure top for each container is a must.

繁殖配備 breeding equipment



包含動物性蛋白質。跟兜蟲比起來，雌性鍬形蟲需要動物性蛋白質才可大量產卵。如果雌蟲是野外採集的個體，牠可能已經捕殺過別的昆蟲取得足夠的蛋白質。但雌蟲如果是人工飼育個體則需要補充動物性蛋白質才可大量產卵。在日本，許多飼育家喜好用獨角仙的蛹讓雌蟲進補。有些飼育家甚至飼育獨角仙只是為了宰殺其蛹給雌蟲吃。用法是直接將蛹活生生地放入雌蟲的容器內讓雌蟲自行宰殺或是先將蛹冷凍然後切片餵食。由於自己本身飼育過多代的獨角仙，叫我殺其蛹我實在是做不下去。雖然有些網站建議用煮熟的五花肉切片來代替獨角仙的蛹，但我發現雌蟲並不是很愛吃，畢竟豬肉跟蟲肉還是差太遠了。我發現有個不錯的小方法。先將麵包蟲和蟋蟀冷凍。之後把內臟擠出來和水果汁液在小碟子上混合攪拌，然後餵給雌蟲吃。不過在方便的今天，飼育者也可以到甲蟲專賣店購買雌蟲進補專用的高蛋白質果凍。以前不懂，沒有餵食動物性蛋白質時，1隻雌蟲一整年產不到5隻幼蟲。但進補過的雌蟲都能產至少15粒卵。動物性蛋白質對雌蟲重要到，有些雌蟲甚至會將較小型的雄蟲或是自己親生的幼蟲從朽木內咬出殺死，好吸取其體內的蛋白質。因此飼育各種非野生的大鍬形蟲雌蟲時，不要忘了補充動物性蛋白質。

雌蟲進補過以後，便可以開始佈置產卵環境。由於大鍬形蟲是第一類的鍬形蟲，因此雌蟲需要硬朽木產卵。*Curvidens*大鍬形蟲的雌蟲產卵時蠻挑剔

We now go into the breeding of *D. curvidens*. Is this species easy to culture? As far as egg laying goes, this species is capable of ovipositing up to 60 eggs. As far as larvae go, like all stag beetle larvae, keeping them alive is easy, but rearing them to giant adults takes hard work.

Let's begin with oviposition. Before a female can do so, she needs to acquire enough nutrients. Although fruit juice can keep a female alive, it lacks animal protein. Compared to female rhinoceros beetles, female stag beetles need animal protein to produce large quantities of eggs. While wild-caught females may already have acquired it by killing and feeding on other insects, captive-reared females will need to be fed animal protein. In Japan, many breeders favor *Allomyrina dichotoma* pupae as the source of animal protein. In fact, some enthusiasts in Japan raise *A. dichotoma* only for this purpose. They either put them directly into breeding containers and let the females kill the pupae on their own or freeze and slice them. Some people find sacrificing rhinoceros beetle pupae disturbing. Luckily, an alternative exists. First, purchase some live crickets and mealworms and freeze them. Then defrost them and squeeze out their guts. Mix the guts with fruit juice on a small dish. Finally, offer the mix to the female. Before I knew about animal protein, each captive-bred female produced no more than five larvae per year. Now each female produces at least fifteen larvae per year, with some females producing more than twenty-



的。除非是一整塊的朽木，否則雌蟲就是不肯產卵。在這多年的飼育中從未遇過例外。取得產卵木最簡單的方式就是到甲蟲專賣店購買。我並不建議到野外採集產卵木，因為野外的朽木本身都已經有各式各樣的生物居住，若把它們帶回家一來是破壞生態，二來是實在不知道裡頭住有什麼生物。裡頭可能有蜈蚣、叩頭蟲幼蟲等的掠食性生物，但是又不能劈開來檢查，否則就不能用了。雖然可以透過冷凍的方式滅蟲，但是之後屍體也會在朽木內腐爛。除此之外，朽木也可能帶有寄生真菌或是有害細菌等等，而這些生物是無法透過冷凍殺死的。反之，甲蟲專賣店所販賣的產卵木是菇農栽植香菇後的附帶品，而且經過乾燥處理，品質上相當穩定。如果實在必須使用野外採集的朽木，請務必冷凍整整3天，以確保做到殺蟲的處理。短時間的泡水（數小時）並不能做到殺蟲，而長時間的泡水（數日）又會使朽木劣化，開始發臭。

Curvidens 大锹形蟲的產卵木直徑至少要有7 cm，但是理想的尺寸在直徑12 cm以上。長度則至少要有10 cm，理想長度20 cm以上。完全乾燥的產卵木使用前先泡水12小時，然後在陰暗處晾乾24小時。產卵木的樹皮可用菜刀去除，如此可幫雌蟲節省體力。由於乾燥的產卵木浮力很強，必須將其放入有加蓋的容器內才能完全泡水。晾乾時請在產卵木下方墊一層吸水物，比如說大毛巾或是一疊報紙。

five. In fact, animal protein is so crucial that females will even kill small males or larvae to obtain it.

Because *D. curvidens* belongs to the first group, females need hard decayed wood



含有動物性蛋白質的雌蟲專用果凍。1996
Beetle jelly with animal protein specially formulated for females.

to oviposit. *D. curvidens* females are rather picky when ovipositing. They only oviposit in large pieces of decayed wood. In all these years of culturing, there has never been an exception. Here in Taiwan, the easiest way to obtain decayed wood is beetle specialty shops. Decayed wood from the wild are not as ideal. For one, they are home to an array of organisms. Two, they may be loaded with predatory invertebrates such as centipedes. Decayed wood cannot be broken apart and checked or they become useless to *curvidens* females. Although it is possible to kill unwanted organisms via freezing, their corpses rot inside the wood afterwards. Furthermore, wild decayed wood may also harbor parasitic fungi which cannot be killed through freezing. Mushroom farms are another great way to obtain decayed wood. If wild decayed wood is your only option, make sure to freeze it for at least three days.