



吉娃斯愛科學繪本

泰雅族語

第6集
看不見的牽絆

翻譯

黑帶·巴彥

配音

里慕伊·阿紀

吉娃斯愛科學

泰雅族語版

第六集 看不見的牽絆



族語全文朗讀



英語全文朗讀



華語全文朗讀





ini kta na binhul



So Small You Can't See



看不見的牽絆







lawn na Ciwas ki Bayhuy qutux hozil.



Giwas and Behuy found a little black puppy.



吉娃斯和飛卉撿到一隻小黑狗。





cyux sm'an hozil mqalux qu Bayhuy, ru
“Ngarux” son niya kmal. ke na Tayal
mha ngarux hya ga “hesyung” son ke
theluw.



Behuy fed the dog and named it Nalu. In
the Atayal language, Nalu means “black
bear”.



飛丹餵小黑狗吃東西，叫小黑狗「嘎魯」。
「嘎魯」在泰雅語是「黑熊」的意思。





rasun ni Ciwas mwah ngasal qu Ngarux
qasa, wal katun na Ngarux qasa qu
cinnunan na yaya.



Giwas brought Nalu home. Nalu chewed
some cloth that Mother had woven.



吉娃斯帶嘎魯回家。嘎魯咬壞了媽媽織的
布。







thmut qu yaya ru wal rasun mgyay
ni Ciwas qu Ngarux.



Mother got angry, so Giwas had to
grab Nalu and run away.



媽媽生氣了。吉娃斯只好抱著嘎魯逃走。







halan nha kmal qu Payan mha klhangiy
qu hozil qasa, ga ini swal qu Payan.



The two kids begged Bayan to adopt
Nalu, but he refused.



兩人拜託巴彥收養嘎魯，但是巴彥不答應。







aki nha rasun mima llyung qu Ngarux,
mha plqwi ktan lga, aki helaw muluw
giqas na pqazyat hiya mha mnglung.



Giwas and Behuy wanted to take
Nalu to the river for a bath. Maybe it
would be easier to find a new owner
if he was clean.



吉娃斯和飛卉想帶嘎魯去河邊洗澡。
也許乾淨的樣子比較容易找到新主人。

慢

原







“laxi rasiy llyung Ngarux!” memaw mnkux
hmwaw qu Payan. glaniy abaw bgayaw
hmaw qsya sa tbaqa pmani Ngarux son nya.



“You can’t take Nalu to the riverside!”
Bayan said nervously. He told them to get
taro leaves to scoop water out of his water
basin.



「不可以帶嘎魯去河邊！」巴彥很緊張地
說。一定要他們摘山芋葉回來舀水甕的水。





magal qutux ini k'uraw na abaw qu Ciwas.
 memtasiq cikay ru m'abux ktan, mtumaw ktan,
 lhmiq qu kintkzyuw niya. magal sa m'uraw na
 abaw qu Bayhuy hya. mtasiq balay ru qruyux
 hazi abaw niya, ru zzik hazi kintkzyuw niya.



Giwas picked some clean taro leaves, light
 green, and round, with a shallow depression.
 Behuy picked dirty leaves, dark green, and
 longer with a deeper depression.



吉娃斯摘了很乾淨的葉子。粉綠色、圓圓的，凹的
 地方比較淺。飛卉摘到髒髒的葉子。深綠色，葉子
 比較長，凹的地方比較深。







mita abaw qu Ngarux lga aki niya katun
abaw. ga si htzyaniy ni Payan la.



When Nalu saw the leaves, he tried to
chew on them too! Bayan stopped him
quickly.



嘎魯看到葉子就想咬。巴彥急忙阻止牠。

慢

原







aw baq nagal ni Bayhuy hya ga maki
rok qasa hya, niqun lga utuw smnquy.



The leaves Behuy had gathered were
giant elephant's ear, which are
poisonous to eat.



原來飛卉拿的是有毒的姑婆芋葉，吃了
會中毒。







“maha ni qutux nanak ktan lga, son nanu mita lpi?” mha maqut qu Ciwas.



“How can you tell the difference by looking at the leaves?” Giwas asked.



「只看到其中一種葉子時要怎麼分辨呢？」吉娃斯問。







“maki babaw na abaw ka cikuy babaly
bukil na Naymi ci hya ga, utuw niya
sqtuxun qu qsya, ru msbebzih mturuy kya.”
maha qu Payan.



“The surface of the taro leaves have fine
nanoscale cilia hairs that cause water
droplets to collect and roll around.” Bayan
said.



「山芋葉子上面的奈米級纖毛讓水聚集成
水珠，在葉子上面滾來滾去。」巴彥說。





ana nha si ktay ga ini nha baqiy mita mha
cyux bukil babaw na abaw qasa. ponga
qu son maha Naymi, memaw mqas balay
qu Bayhuy, yan niya si ga baqun maniq la.



The two kids looked closely, but couldn't
see the hairs. Behuy got excited when he
heard the word “nano” because he
thought it was a delicious food.



兩人看了半天，看不出葉子上有毛。聽到
「奈米」，飛卉很開心，以為是好吃的食物。





msyaq Payan maha “Naymi hya ga
cipoq balay na pspngan ke qasa hya,
ini baqiy mita na rawziq.”



Bayan laughed and said: “A nanometer
is a very, very small measurement of
length, you can’t see it with the naked
eye.”



巴彥笑著說：「奈米是很小很小的長度
單位，用眼睛是看不出來的。」







ktwa kincipoq qu Naymi qasa? kmal Payan maha
“maha ni sgisa ta maha mzyan pintriqan kin
krahu qu abaw bgayaw ga, nanu qu bukil na
Naymi qani ga aki yaquw pyang khit balay ru
kincipoq bukil qsahuy na Ngarux qu Naymi’ qani.”



How small is it really? Bayan said: “If the taro
leaf was as big as the ancient battlefield, the
cilia hairs would be the size of the smallest hairs
on Nalu’s body.”



奈米到底有多小？巴彥說：「如果把山芋葉變成像
古戰場那麼大，葉子上的纖毛就變成像嘎魯身上最
細最短的毛一樣長。」







swa baqun smqutux na bukil qu
qsya pi?



Why do the cilia hairs turn water
into droplets?



為什麼纖毛可以聚集水珠呢？







maha ni pkrhun ta mita qu abaw bgayaw ga,
musa ta ktan kya qu kinini ptnaq kinb'nux babaw
niya la. qutux qutux cyux ps'bu qasa ga, cyux
ki'an mpusal msyaw, ini ga mzimal msyaw mzyan
balay rom kincipoq cyux ms'rux ka maki La' niya.



If you magnify the taro leaves, you can see that
the surface is uneven. Each protruding structure
has needle-like waxy structures 20 to 50
nanometers in size.



如果把變成山芋葉變成很大來看，會看到葉子表面
其實是凹凹凸凸的。每個凸出的地方，上面又有
20個到50個奈米那麼小又像針一樣的蠟質東西。

慢

原







ini sawya maki sa cyux ki'an La' qu
qsya hya. ki'a Naymi uzi Iru nanu yasa
qu ini baqiy psqlah kiya sa babaw na
La' abaw qasa qu qsya.



Water “doesn’t like” to touch those
waxy structures.



水「不喜歡」和葉面上那些蠟質東西在一起。
可是因為「奈米」的關係，水就更
「不喜歡」貼在葉面上。







kmal qu Ciwas maha “aw cipoq balay
qu Naymi rwa? yan nasa kinlokah pi?”



Giwas said: “Isn’t nano really small?
How can it have such a big impact?”



吉娃斯說：「奈米不是很小嗎？有那
麼厲害嗎？」







kmal Payan maha “nanu qu cyux ki’an cingay balay mzyan cingay balay na rom ka Naymi ka cyux ki’an na La’ cyux ps’bu babaw na abaw ga, nanu cingay uzi qu ppstnaq na qsya squ La’ qasa la.”



Bayan said: “All of the protruding areas on the surface are full of nanoscale waxy needle-like structures, increasing the contact area with water, so the water doesn’t like to touch the leaf 's surface.”



巴彥說：「葉面上每個凸出的地方上面又長滿奈米級像針一樣的蠟質東西，讓水和蠟質東西的接觸面積又更多更多了。」







ini sawya maki nqu qsyā qu cyux ki'an La' babaw qasa lga, nanu si ptqtuy nanak qu qsyā lru nanu si psbbzih mturuy lqu qsyā la. nanu mshutaw rhzyal qu qsyā lga, rasun naha uzi kwara qu bhbuh mnaki na abaw qasa la, ktan su ka ini k'uraw qu abaw bgayaw la.



Because the water doesn't like to touch the waxy structures, the water on the leaves collects into droplets and rolls around on the surface. When the droplets roll off the leaf, they bring dust and dirt with them, so the leaf becomes clean.



因為不喜歡和葉面那麼多的奈米級蠟質東西貼在一起，葉面上的水就聚集成水珠，在葉面上滾來滾去。水珠從葉面滾下時，也順便把葉面的灰塵帶走，葉面變得很乾淨。







nqu zyaw nyan qani ga, nanu ktan kya sa abaw quw zyaw qani ru, yasa qu si nha say maha “ryenye syaw’ing” qu zyaw yan qani la. kyahil na qulih Sayuy uzi ga nanu myan qani uzi. ktan su ka lhngat balay mIngyaq maki qsahuy qsya qu Sayuy’ la!



This phenomenon was first discovered on lotus leaves, so it is called the lotus effect. Shark skin has the same effect, so sharks can swim really fast!



這種現象，最早是在蓮葉上發現的，所以又叫做蓮葉效應。鯊魚皮也有同樣的效果，所以鯊魚才可以游得很快！







aw baq myan qani ga! memaw mqas
balay mema ni Ngarux kwara naha.



So that's how it works! They all
happily gave Nalu a bath.



原來如此！大家開心地一起幫嘎魯洗澡。







blaq balay ni Ngarux qu Payan qasa, ini
hngaw musa sqlah kya.



Nalu really liked Bayan and wouldn't
stop playing with him.



嘎魯很喜歡巴彥，不停跟巴彥撒嬌。







Inglungun iy Payan qu qinyatan niya
hozil Ngarux sraral wal pshutaw llyung
lga, bsyaq balay ini si qblaq kinyaqih
inlungan niya.



Bayan became sad because he was
reminded of a dog named Nalu he had
as a kid who fell into the river.



巴彥想起他小時候養的嘎魯掉進河裡，
讓他難過很久。







kmal Ciwas maha “mnbu sa wayal uzi qu
Ngayngay ga, yaqih balay uzi inlungan
maku, ga wal maku ‘nblayqun balay
mlahang Ngayngay hya kiy!”



Giwas said: “Nainai once got really
sick and I was sad too, but I took good
care of him!”



吉娃斯說：「乃奈之前病得很重，我也
很難過，但我很仔細的照顧乃奈喔！」







trang nyuw Imnglung Payan maha hazi
nyux sqzyan qu Ngayngay qani maha lga,
Inglungun ni Ciwas qu pinnbwan niya qsya
hnaw abaw bgayaw squ Ngayngay sa sasan.

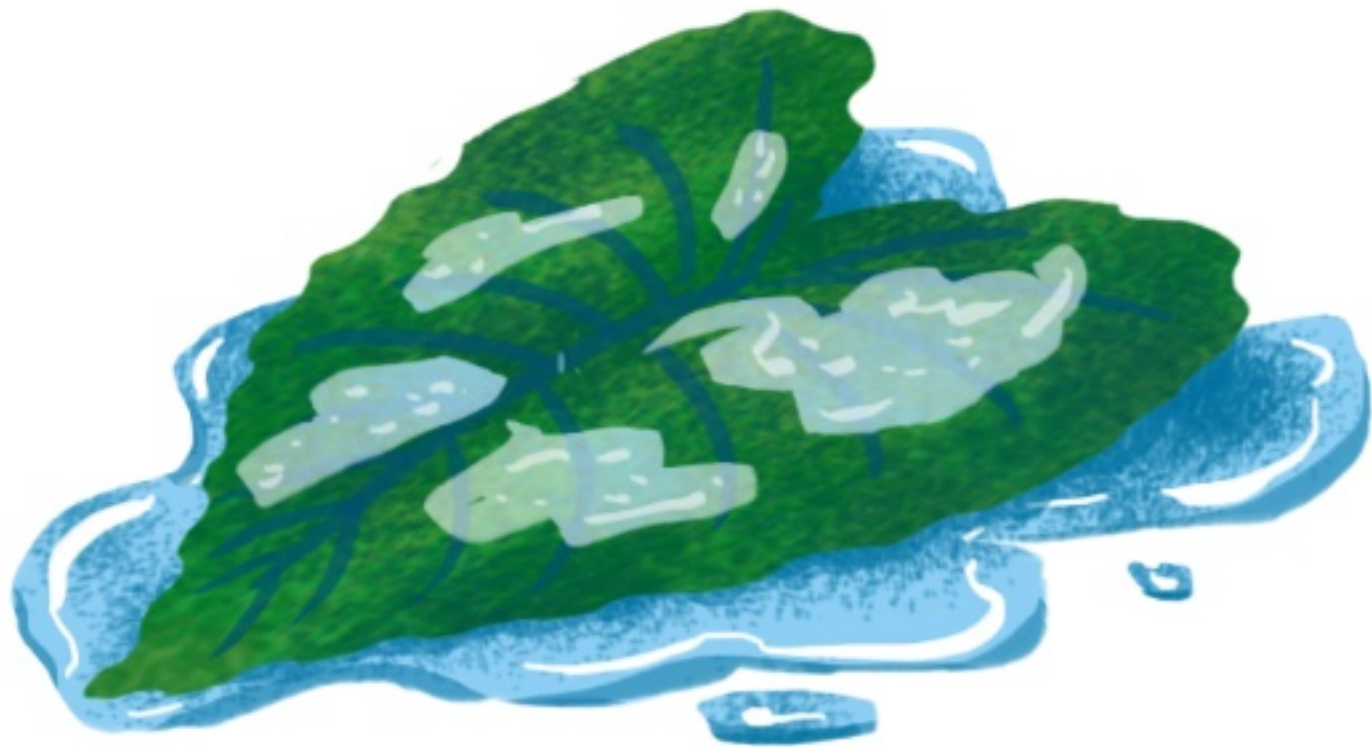


Bayan thought that maybe Nainai had been
poisoned, and Giwas remembered that she
had used “taro leaves” to bring him water
that morning.



巴彥正懷疑乃奈是吃壞肚子時，吉娃斯突
然想起早上還用「山芋葉」裝水給乃奈喝。







aw ga swa yan ini qtuy qsya qu abaw
bgayaw qasa hya pi?



But that “taro leaf” didn’t form water
droplets.



但是那片「山芋葉」好像不會聚集水珠？





kmxyalan qu Ngayngay, memaw
hngyang balay inngazyuq niya. aw baq
sa nyux sqzyan na abaw bgayaw gaw!



Nainai got angry and cried out.
Apparently Nainai had been poisoned
from the elephant's ear!



乃奈很生氣，叫得更慘。原來乃奈中了
姑婆芋的毒！



《吉娃斯愛科學》- 泰雅族語版

第六集看不見的牽絆

補助單位一：教育部（繪本紙本製作）

計畫名稱：「發現天生科學家：原住民族文化科學學習實踐與發展十年計畫」（第一階段第一年）

補助單位二：科技部（繪本繪圖製作與泰雅語翻譯配音）

計畫名稱：「雲端飛鼠部落科學遊戲繪本 II」

計畫主持人：傅麗玉

計畫執行單位：國立清華大學原住民族科學發展中心

族語翻譯：黑帶・巴彥

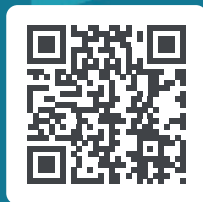
族語配音：里慕伊・阿紀

協力製作：原金國際有限公司、藍海娛樂影音科技股份有限公司

出版日期：中華民國109年3月

吉娃斯 愛科學 Go Go Giwas

 粉絲專頁



 遊戲繪本 iOS 版



 遊戲繪本 Android 版

