



吉娃斯愛科學繪本

太魯閣族語

第6集
看不見的牽絆

翻譯／配音

Iming Yuci (王利蘭)

吉娃斯愛科學

太魯閣族語版

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





Htur ini qtaay



So Small You Can't See



看不見的牽絆





Lmamu kingal mqalux wawa huling
ka Ciwas ni Ahuy.



Giwas and Behuy found a little black
puppy.



吉娃斯和飛卉撿到一隻小黑狗。





Dmanga huling bilaq mqalux speekan
na uqun ka Ahuy, hangan huling bilaq
mqalux o Kumay. Kari Truku Kumay nii
o kumay ksun.



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」在太魯閣語是「黑熊」的意思。





Ciwas o dsan na sapah ka Kumay, qmiyut qabang cinun bubu ka Kumay.



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。





Msaang ka bubu da! Asi qraq Kumay
qduriq ka Ciwas.



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。





Brahaw Payan ka dhiya tbgi ka Kumay
sun na. Kiya ni ini sruwa ka 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。





Knmadas Kumay mowsa siyaw yayung
trima ka Ciwas ni Ahuy, ya kburah ka
hnyigan o kika mseelxan bi mying bgurah
seejiq pusu.



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。





Slhbun ka Payan rmngaw: “Iya bi dsi siyaw yayung ka Kumay!” Usa mangal rnabaw brayaw ni sahug dha mniq ska tutu skuan qsiya hiya.



“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。





Kntuy bgurah bi rnabaw ka Ciwas. Empajiq, mqurug. Nniqan rbuq o ini hari pajiq qtaan. Lmamu rruciq bi rnabaw ka Ahuy. Mgpajiq bbaraw bi ka rnabaw. Nniqan rbuq o pajiq bi qtaan.



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。





Qmita rnabaw ka Kumay knqmiyut bi,
htran Payan nhari.



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。





Kla mangal rnabaw brayaw ka Ahuy o
niqan tuba, mkan do tjiyal pnsahug da.



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。





Smiling ka Ciwas: “Hmuya qmita msgaaw
ka kska rnabaw hug?”



“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。





Rmngaw ka Payan: “Babaw rnabaw brayaw
o niqan cibilaq bi ubal psslian qsiyaw,
tduwa mniq babaw rnabaw mlgug.”



“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 dha bsiyaq qmita, ida dha ini qtai ka babaw rnabaw niqan ubal, embahang “Naymi”, mqqaras bi ka Ahuy, yaasa suyang bi uuqun.



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。





Rmngaw ka Payan: “Cibilaq cibilaq bi ka
Naymi, aji tduwa qmita ka dowriq ta uri.”



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。」





Khnu cipi q ka Naymi? Rmngaw ka Payan: “Nasi su ngalan mdka tglayan sbiyaw ka rnabaw brayaw o babaw rnabaw cibilaq ubal o mdka llbu ubal hiyi Kumay knbragan na.”



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。」





Hmuya ka ubal cibilaq tduwa pssli qsiya?



Why do the cilia hairs turn water into droplets?



為什麼纖毛可以聚集水珠呢？





Nasi pryuxan paru ka rnabaw brayaw, babaw na hiya o rrbuq ni mlhuyuq. Kngkingal mlhuyuq na o niqan ka epusal bitaq mrimal mdka Naymi knbilaq saw mdka qumi srusuq qtaan.



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.



如果把山芋葉變很大來看，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。





Qsiya ini skuxul tghuy srusuq, yaasa
Naymi kiya, qsiya do ini bi skuxul
sqapah babaw rnabaw.



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。





Rmngaw ka Ciwas: “Aji cipi q bi ka Naymi hug? embiyax bi hug?”



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？」





Rmngaw ka Payan: “Saw gaga babaw kngkingal mluyuq o sriyu lala bi mdka qumi srusuq, kika tduwa strngan lala ka qsiya ni qaya rusuq.”



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。」







Yaasa ini skuxul tghuy lala Naymi sqapah, mniq babaw rnabaw qsiya o pssli, kika strudu qurug qsiya, strudu truma siida, dsan na ka bnguh mniq babaw rnabaw, saw kmruwah qtaan.



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。





Manu saw nii o, kika prajing mhlai babaw
rnabaw, kika ksun bnrihan rnabaw. Rhiq
qsurux paru mqiyut saw kiya uri, manu saw
kiya kika slikaw bi tmapaq qsiya!



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！





Kla saw kiya! Seupu ta mqaras dmayaw
trima Kumay.



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。





Skuxul bi Payan ka Kumay, kniwa bi
srbnaw hyaan.



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。





Lmnglung laqi siida tmabug Kumay ka
Payan, bsiyaq bi naqih kuxul na.



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。





Rmngaw ka Ciwas: “Kneywa bi mnarux na ka Nanay, naqih bi kuxul mu, enduwan mu kmlawa ka Nanay!”



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！」







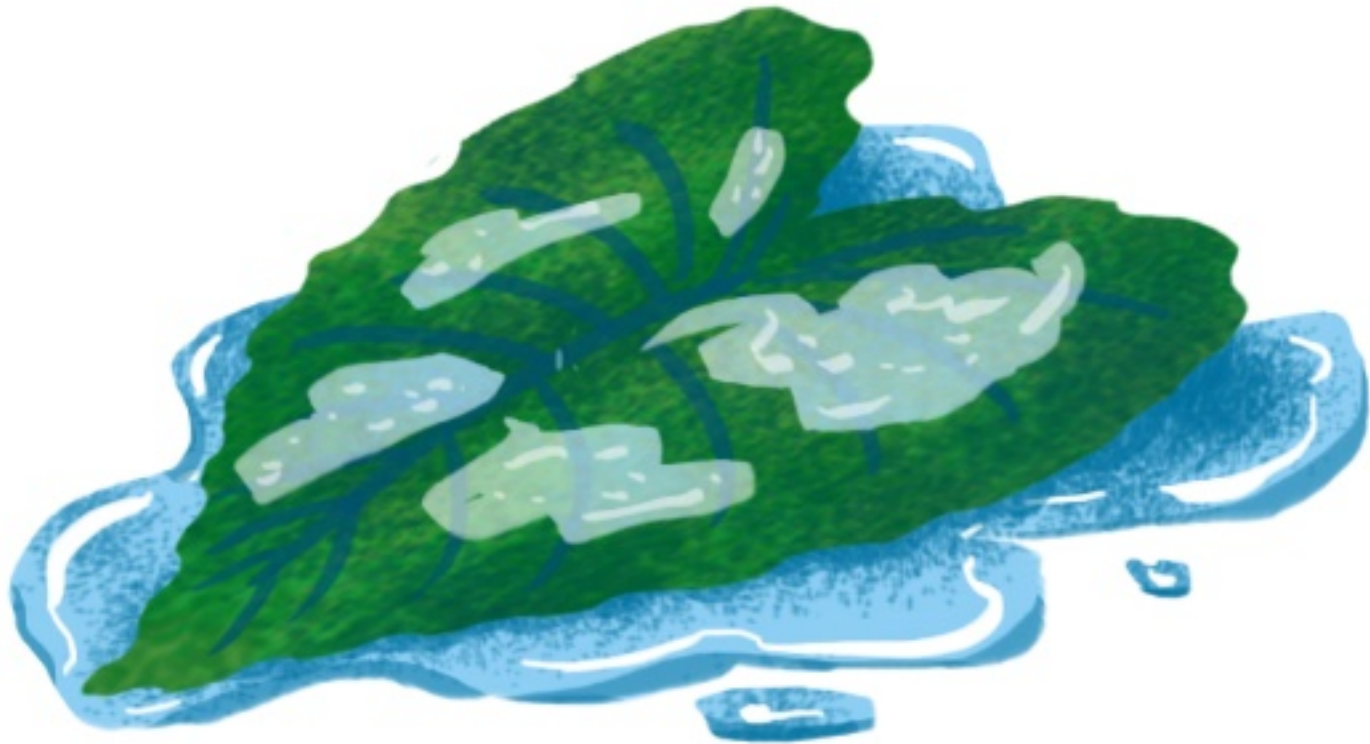
Lmnglung ka Payan, uxay snbuyas ka Nanay
siida, lnglung ka Ciwas mgrbu mduuy
rnabaw brayaw sahu na qsiya ka Nanay.



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。





Kiya ni rnabaw brayaw nii o ini pssli
qsiya?



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



但是那片「山芋葉」好像不會聚集水珠？





Msaang bi ka Nanay, saw skluwi
mlawa. Kla msa pnsahug sari brayaw
ka Nanay!



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》- 太魯閣族語版

第六集 看不見的牽絆

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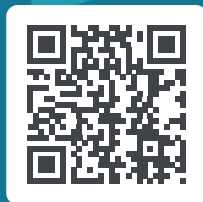
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 粉絲專頁



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