

草漯沙丘地質公園

CAOTA SAND DUNES GEOPARK



桃園市政府海岸管理工程處
Office of Coast Administration Construction, Taoyuan



目錄 Contents

地質公園介紹 INTRODUCTION TO GEOPARK	03
什麼是地質公園？WHAT IS A GEOPARK?	03
地質公園四大核心價值 CORE VALUES OF GEOPARKS	06
草漯沙丘地質公園介紹 INTRODUCTION TO CAOTA SAND DUNES GEOPARK	07
草漯沙丘簡介 CAOTA SAND DUNES	07
草漯沙丘地質公園分區規劃 ZONING OF CAOTA SAND DUNES GEOPARK	09
沙丘地形介紹 SAND DUNES LANDFORM	11
沙丘的形成 FORMATION OF SAND DUNES	11
沙丘的演育 EVOLUTION OF SAND DUNES	13
海岸沙丘的類型 CLASSIFICATION OF COASTAL DUNES	14
沙丘的功能 FUNCTION OF SAND DUNES	15
草漯沙丘生態系 CAOTA SAND DUNES ECOSYSTEM	17
草漯沙丘地質公園遊憩資訊 TOURIST INFORMATION	19
大園潮音海觀景步道 DAYUAN CHAOYIN SEASCAPE TRAIL	19
觀音白沙屯觀景步道 GUANYIN BAISHATON SEASCAPE TRAIL	21

什麼是地質公園？

WHY SET UP CAOTA SAND DUNES AS A GEOPARK?

1999年11月，聯合國教科文組織（UNESCO）提出「促進各地具有特殊地質現象的景點共同形成了全球性的網絡」的計畫，經過聯合國大會會議核准。這項計畫整合了世界各地具有國家性或國際性的地景保育景點，例如：地景景點、特殊地形、地質遺產等地質環境，皆以地質公園之名義提倡之。

聯合國教科文組織推動地質公園的目的，是為了達到環境保護及促進小區域的經濟發展，整合自然、人文社會等環境資源，使其能永續發展。藉由地質公園的實踐，提升大眾對地球遺產價值的認知及地球環境承載力的認識，促使我們能更珍惜地使用有限的地球資源，進而達到人與環境的永續。

地質公園的概念在經過多年努力推介後，於民國105年7月納入《文化資產保存法》，為新增的文化資產類別，屬於自然地景的一類，並開展了法定地質公園的認證工作。

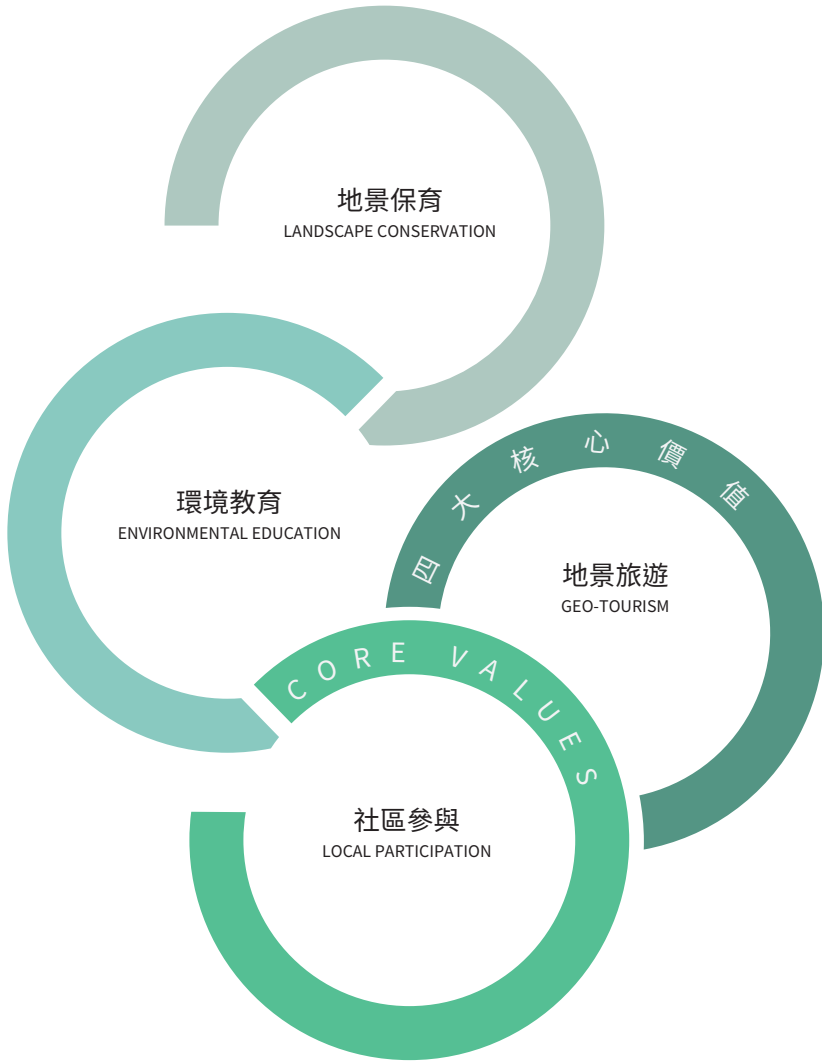


In November 1999, UNESCO proposed an initiative to “foster the formation of a global network of tourist attractions with special geological phenomena” with the approval of the United Nations Convention. This initiative incorporates national and international landscape conservation sites from around the world. For example, landscape sites, special landform, geoheritages, and other geological environments are included in the initiative in the name of Geopark.

The purpose for UNESCO to support geparks is to protect the environment, propel the economy of smaller and marginalized regions, incorporate the nature, civilization, society as well as other environmental resources to sustain the development of geoparks. Through the practices of geoparks, the public’s awareness to the values of the Earth’s heritage and the bearing capacity of nature environments could be raised, so that the limited resources of the Earth would be cherished. By doing so, we can sustain the existence of the mankind and the environment.

After years of efforts in promoting the concept of Geopark, it was finally included in the Cultural Heritage Preservation Act as in July 2016. It is a new type of cultural assets under the category of natural landscapes, and the certification of legal geoparks has thus been carried out.





地質公園四大核心價值

CORE VALUES OF GEOPARKS

地質公園是以具有特殊地質科學意義、稀有自然屬性、較高美學價值的地質景觀為主體，融合其它自然與人文景觀而構成的一種獨特自然區域，具有包括「地景保育」、「環境教育」、「地景旅遊」及「社區參與」等四大核心價值，除了加強保育特殊地質、地形景觀外，也希望藉由地景保育及地景旅遊，讓環境教育紮根，並鼓勵在地社區共同參與，創造多元經濟發展。

草漯沙丘地質公園的設立，是為了讓桃園獨特的沙丘地景資源獲得完善的保育與合理利用，並希望藉由在地社區自主守護，讓人與地和諧共處。

Geopark is a unique natural area composed of geological landscapes with special geological scientific significance, rare natural attributes, high aesthetic value, and other natural and human resources. Its core values include “landscape conservation”, “environmental education”, “geo-tourism”, and “local participation”. That is, in addition to strengthening the conservation of special geological and topographic landscapes, it is also hoped that environmental education and local participation can take root through the practice of landscape conservation and geo-tourism, stimulating economic developments.

The Caota Sand Dunes Geopark was established to allow Taoyuan’s unique sand dune to be well conserved and utilized properly, and it is hoped that people could live in harmony with the nature through the protection of the local community.

草漯沙丘地質公園介紹

INTRODUCTION TO CAOTA SAND DUNES GEOPARK



草漯沙丘簡介 CAOTA SAND DUNES

草漯沙丘位於大園區老街溪口到觀音區大堀溪口間，綿延大約8.1公里，是桃園海岸最為高大寬闊的海岸沙丘，平均垂直高度可達10-20公尺，鄰近海側的活動沙丘最寬可達150公尺以上，冬日東北季風強大時，經常風沙飛揚，可說是小型的「撒哈拉沙漠」，為台灣海岸中沙丘保持最寬廣完整者，也因此於民國102年被「臺灣環境資訊協會」曾評選為臺灣9處最值得守護且最美麗的海岸之一，是非常珍貴的自然地景。遊客可透過大園潮音海觀景步道及觀音白沙屯觀景步道兩處步道接近草漯沙丘獨特的地質景觀及周邊獨特的海岸生態。

草漯沙丘為代表性之地質景觀、具海岸保護效益及教育與學術價值，桃園市政府依據文化資產保存法，於109年6月11日公告為地質公園，並進行分級分區管理。

Caota Sand Dunes is located between the mouth of LaoJie River of Dayuan and that of DaKu River in Guanyin. Stretching about 8.1 kilometers, it is the tallest and widest coastal dune in Taoyuan. The average height can reach 10 to 20 meters, with active dunes near the sea measuring up to 150 meters wide. Selected as one of the most beautiful coasts worth guarding in Taiwan by Taiwan Environmental Information Association, Caota Sand Dunes is also called “Taiwanese Sahara Desert” due to the desert-like scenery caused by the northeast monsoon in winter. Visitors can access the unique geological landscape and ecology through two trails: Chaoyin Seascape Trail and Baishaton Seascape Trail.

Due to the special geological and topographic features, coastal protection benefits, and environmental education and academic values, Caota Sand Dunes was announced as Taoyuan City Geopark by the Taoyuan City Government on June 11th, 2020 according to the Cultural Heritage Preservation Act.



草潔沙丘地質公園分區規劃

ZONING OF CAOTA SAND DUNES GEOPARK

● 核心區 | 18公頃

擁有最完整的沙丘型態，為了保護特殊地形與地質，僅提供學術研究、環境教育申請進入。

● 復育區 | 22公頃

為保障垃圾掩埋場及北港垃圾掩埋場的所在地，須進行環境監控，僅工作人員可進入。

● 一般區 | 244公頃

民眾可自由進出之區域，提供環境教育、休閒遊憩及風機維修使用。

● Core Zone | 18 ha

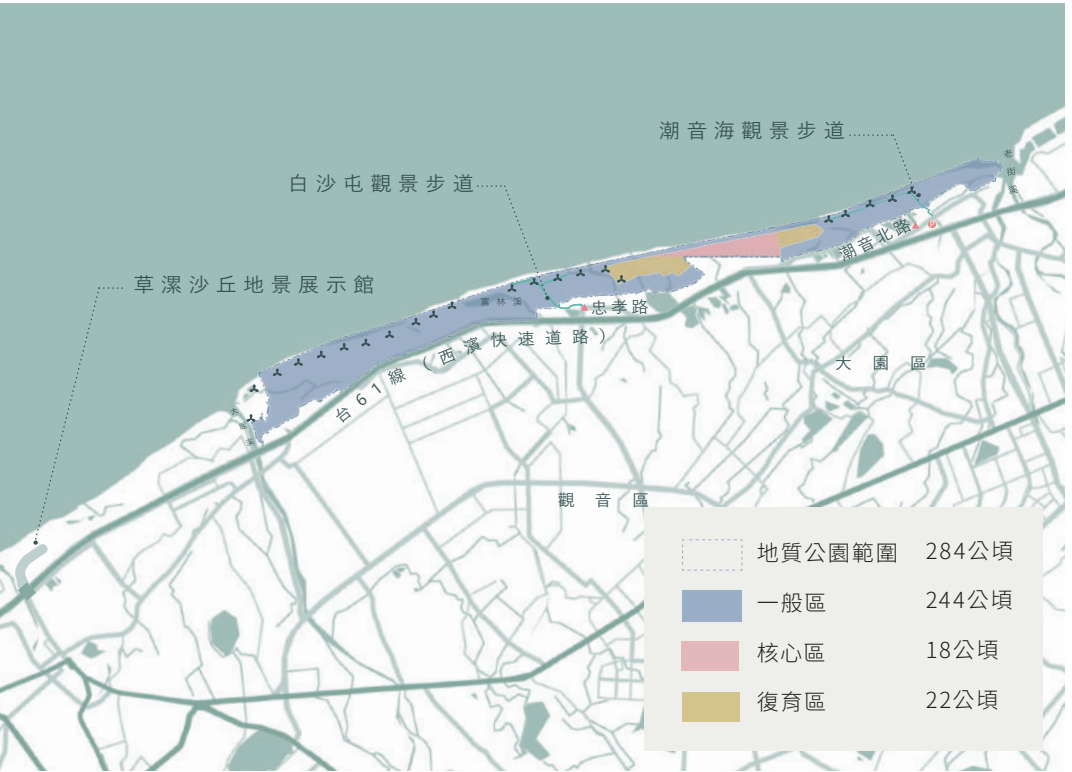
For the area with the most complete dune pattern, only academic research and environmental education applications are allowed to protect its special landform and geology.

● Rehabilitation Zone | 22 ha

Baozhang Landfill and Beigang Landfill are located in this area. Only working personnel can enter as environmental monitoring is carried out.

● General Area | 244 ha

This area is open to public access, providing uses for environmental education, recreation, and maintenance of the wind turbines.



草潔沙丘地質公園地圖
CAOTA SAND DUNES GEOPARK

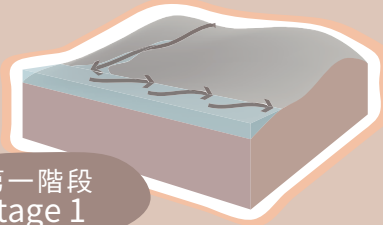
沙丘地形介紹

SAND DUNES LANDFORM

沙丘的形成

FORMATION OF SAND DUNES

第一階段 Stage 1



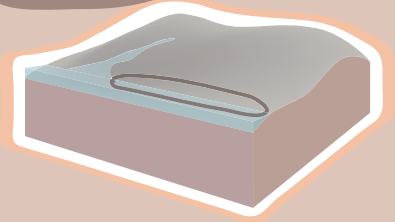
河川（南崁溪、埔心溪、新街溪、老街溪、富林溪、大堀溪等）自源頭流至大海，將沿途泥沙搬運至出海口，風浪在近海岸形成的沿岸流再將漂沙沿海岸搬運。

Along the river flows, the sediments are transported to the estuary. The coastal current formed by the wind and waves near the coast will then move the drifting sand toward the coast.

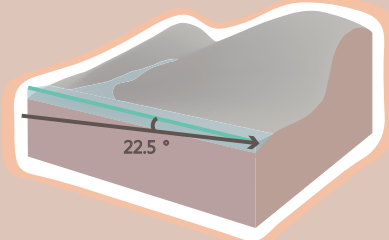
漂沙積留於海陸邊界，堆積形成新的沙灘。桃園海岸冬季東北季風強勁，海灘上乾掉的沙子會被季風帶向內陸，形成風吹沙的現象。

As the drifting sand accumulates on water-land boundary, it forms a new beach. The northeast monsoon at the coast of Taoyuan is strong in winter, carrying the dried sand on the beach inland and resulting in “wind-blown sand” .

第二階段 Stage 2



第三階段 Stage 3



桃園海岸線走向特別，與東北季風風向斜交，使得沙粒特別容易在海岸堆積，逐漸形成平行海岸的大型沙丘。

The coastline of Taoyuan has an oblique intersection to the northeast monsoon, creating an environment in which sand particles accumulate easily on the coast and gradually forming large dunes parallel to the coast.

沙丘形成環境條件
Conditions Necessary for Dune Formation



強的向岸風：東北季風

Dominant on-shore wind: Northeast monsoon



豐富的沙源：沿岸漂沙、海灘沙

Abundant sand sources: Floating sand along the coast, beach sand



停積的空間：台地邊緣狹長的海岸沖積帶

Space for deposition: The long, narrow coastal alluvial belt at the edge of the tableland



適當的植生覆蓋

Vegetation coverage



低角度緩坡海岸

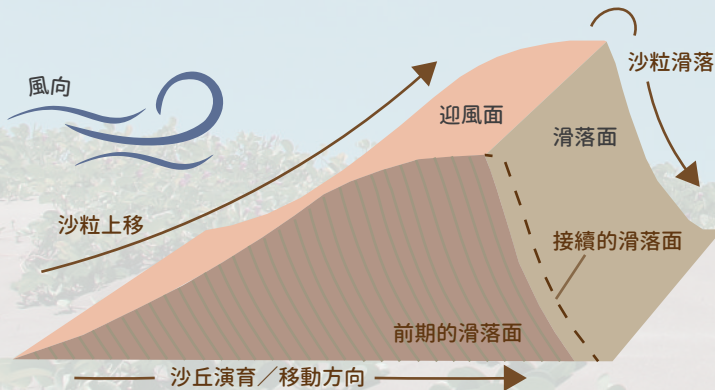
Extensive back-shore area

沙丘的演育

EVOLUTION OF SAND DUNES

沙丘不是一個固定、永久性的沉積，它會不斷地沿著風吹的方向往前移動。於迎風面，沙粒被風吹動沿著斜坡跳躍而上，當風吹過頂端的時候，風速頓減，便自然會堆積起來。沙丘的頂部於是就漸漸形成一道稜線，而當背風側的沙粒堆積至最大限度時，就發生沙崩，沙粒會在背風較陡的面面向下滑落，形成新的滑落面，這樣連續重覆的作用就造成沙丘的向前移動。

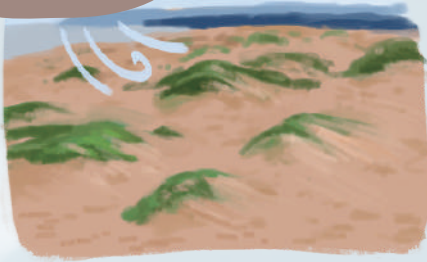
Sand dunes are not fixed, permanent deposits, they move forward along the direction of the wind. On the windward side, the sand particles are brought up along the slope by the wind. When the wind blows over the top, the wind speed suddenly decreases, causing the sand particles to deposit. The top of the dune then gradually forms a ridge, and when the sand on the leeward slope accumulates to the maximum angle, a sand avalanche occurs. The sand will slide down on the steeper leeward slope to form a new slipface. This successive, repetitive action then causes the sand dunes to move forward.



海岸沙丘類型

CLASSIFICATION OF COASTAL DUNES

陰影丘/胚胎丘
Shadow dune



主要於寬廣後灘與沙丘前坡邊緣處發育，風沙在天然植物或阻礙物的背風側堆積成一小丘。

It mainly develops at extensive back-shore areas or the front slope of the sand dune. Blocked by plants or other obstacles, the sand particles then deposit into a small dune on the leeward side.

饅頭丘/灌叢丘
Nabkha dune



零散的植物分佈逐漸布滿大小不一的小沙丘，使整個沙丘呈現如饅頭一般的樣態。

Formed by sand deposition within discrete plants on the backshore, Nabkha dunes resemble a steamed bun.

前列沙丘
Foredunes



隨時間增長，近海側形成大致與海岸平行的沙丘形態。

Over time, foredunes are formed parallel to the coast on the offshore side.

沙丘的功能

FUNCTIONS OF SAND DUNES

海岸防禦

Function 1 - Coastal Defense

沙丘是保護海岸及沿海社區聚落的最佳天然屏障，對環境的變化具高度的調適及緩衝功能。風暴期間，不但制止波浪的入侵，還能為海灘供給沙源；沙丘植生和防風林木兼具制止強風、鹽沫和沙粒等入侵內陸。

Sand dunes are the best natural barrier that protect the coast and coastal communities, and they have a high degree of adjustment and buffer function to environmental changes. During storms, they not only prevent the intrusion of waves, but also provide sand for the beach; dune vegetation and windbreak forests both prevent strong winds, salt foam and sand from entering the inland.

生態棲地環境

Function 2 - Ecological Habitat

海岸沙丘區長期處於缺水、強風、多鹽及日夜溫差大的氣候下，生態環境異於內陸環境，僅有少數耐旱抗鹽的海濱植物能夠在此生長，形成沙丘獨有的生態系。

Under the climate of water shortage, strong wind, saltiness and large temperature difference between day and night, the ecological environment in coastal dunes area is quite harsh. Only a few seashore plants that can tolerate drought and salt grow here, forming a unique ecosystem.

景觀遊憩

Function 3 - Landscape for Recreation

沙丘地形壯麗且療癒，其景緻亦會隨著四季變化，夏季時綠意盎然，林木成蔭，冬日則有平坦遼闊的景觀，且沙丘生態資源豐富，為觀光休閒好去處，更是自然、防災、生態教學的野外教室！

Sand dunes are magnificent and healing, and its scenery changes with the four seasons, serving as a good place for sightseeing and recreation. In summer, there are full of greenery and shady trees. In winter, there are flat and vast landscapes. Rich in ecological resources, the sand dunes are also outdoor classrooms for environmental education!

儲水功能

Function 4 - Water Storage

沙丘能夠儲存地下水，也可以過濾、淨化水質。

Groundwater can be stored in sand dunes, and dunes also filter and purify water.

草潔沙丘生態系

CAOTA SAND DUNES ECOSYSTEM

帶著紫花，蔓生沙地上，
葉片帶有芳香，
古早味的涼茶配方。

With purple flowers spreading on
the sandy ground, it has fragrant
leaves that can be used in
traditional herbal tea.



海埔姜

VITEX ROTUNDIFOLIA

喜歡迎著大海生長，
更有愛情的傳說，
替草海桐為適應濱海環境而演化成的
半邊花形增添故事性。

Having half-shaped flowers that
are evolved to adapt to the coastal
environment, this special plant has
a legendary love tale to be told.



草海桐

SEA LETTUCE



白水木

SILVERY MESSERSCHMIDIA

枝葉和花都布滿銀白色的絨毛，
又稱銀毛樹，而且生長的地方
絕大多數都看得到海水，
所以稱為白水木。

With leaves and flowers covered
with silvery white fluffs, it is known
as “silvery hairy trees”. It is also
called “white water wood” as it
grows along the beach.



天人菊

GAILLARDIA PULCHELLA

猶如朵朵小煙火，
隨風搖曳，
為沙地增添一份熱鬧。

Swaying in the wind, its flowers
are like little fireworks popping
up from the grass, adding vigor
to the sandy land.

濱刺麥頂端長了海膽般的雌花序，成熟後會脫離植株在沙灘上隨風奔跑，觀察時不要被刺到了。

Rolling on the sand dunes in the wind, the sea urchin-like thing is the inflorescence that detaches from the plant when it is ripe. Don't get stabbed when observing.



濱刺麥

LITTORAL SPINE GRASS

灰色樹皮搭配愛心形狀葉子，手掌大的黃花，讓黃槿非常好辨認，早期更是居民「炊粿」的襯底材料。

The gray bark paired with heart-shaped leaves lined with yellow flowers as large as the palms make Cuban Bast very recognizable. In the early days, it was a good substrate for rice cake.



黃槿

CUBAN BAST



雙扇股窗蟹

SCOPIMERA BITYMPANA

沙灘上的迷你藝術家，進食後留下小小的沙團，形成各種有趣的圖案。

As the mini artist, it leaves small sand ball after dining, leaving various special pattern on the beach.




紅脈熊蟬

CRYPTOTYMPANA ATRATA

披著金色翅脈，享受著樹木的汁液，為夏天的海濱帶來宏亮的鳴響。

Enjoying the juice of the trees in its golden cloak, it brings bursts of loud lively sounds to the summer beach.



 交通資訊



大園潮音海觀景步道

DAYUAN CHAOYIN SEASCAPE TRAIL

古老的民房旁，
沿著居民走出的綠色隧道探險，
彷彿鑽入宮崎駿動畫中的龍貓隧道，
隨著波動的光點走到盡頭，白色風機出現在一旁，
您可以選擇踏上階梯，於平台上眺望沙丘及海景；
抑或是向前穿越小徑，漫步於沙丘之中，
再前往沙灘觀賞日落美景。

Alongside the old house,
there is a green tunnel that is shaped by the residents' footprints.
Walking to the end of the path in the dappled light,
you would find a white wind turbine on the side.
You can choose to step up the stairs and enjoy the
panoramic view of the sand dunes and the seascape,
or to cross the trail and take a stroll on the dunes in sunset.

觀音白沙屯觀景步道

GUANYIN BAISHATON SEASCAPE TRAIL

走過兩側搖曳的樹林，
映入眼簾的是蔚藍天空、綿延沙丘。
步道兩旁，各種獨特的濱海植物生意盎然。
循著前人的足跡走上沙丘，
您可以感受到沙粒隨著風的吹拂而躍動，
沙紋亦隨著時間逐漸變化，在寬闊的沙丘坪頂上，
海景盡收眼底，至黃昏時刻，夕陽及彩霞宛如濾鏡，美不勝收。

As you walk through the swaying woods, what came into view is the blue sky and the rolling sand dunes. The coastal plant path is lined with various unique coastal plants.

Following the footsteps up the sand dunes, you can feel the grains of sand pulsing with the wind, and the sand ripples gradually change over time. On the top of the wide sand dunes, you can get a full view of the beautiful seascape, especially at dusk, as the setting sun and colors blend like a filter.





 交通資訊





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