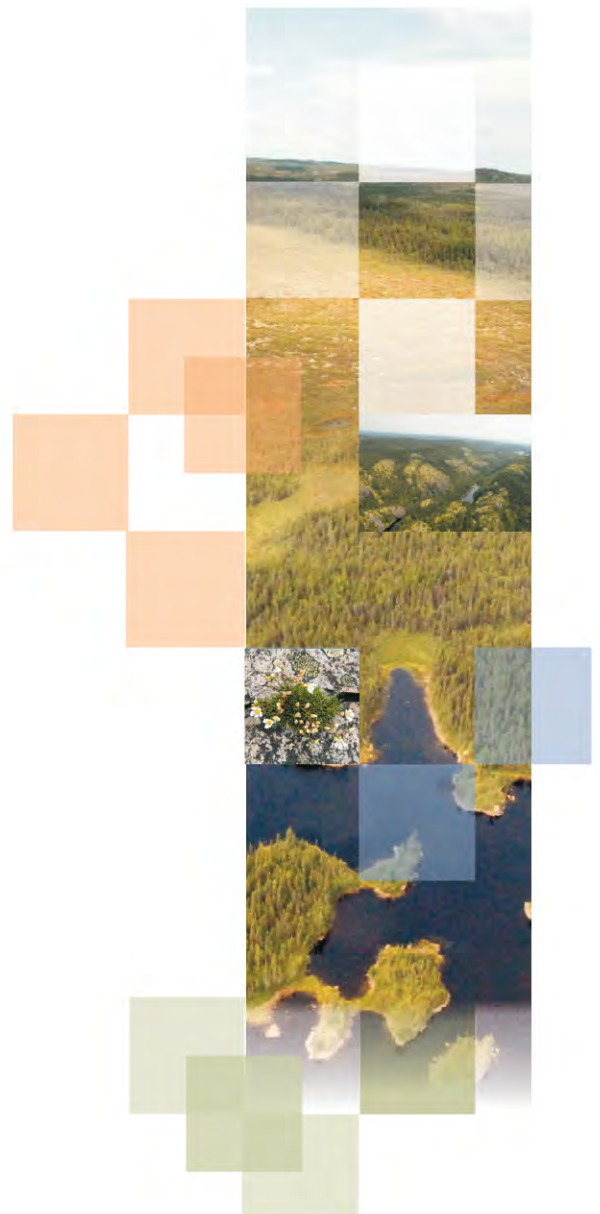




Protected areas  
in Québec:

A Lifelong Heritage

# Réserve écologique de la Matamec



C O N S E R V A T I O N P L A N

Québec 

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## **1. Official Toponym**

Official toponym: Réserve écologique de la Matamec. This name refers to the rivière Matamec and the fact that part of its watershed is protected by the ecological reserve.

## **2. Site History**

In 1916, the American naturalist Walter Amory built the Matamec Research Station near the mouth of the river. Because of his interest in the ecology of the Côte-Nord and under the auspices of his son, Copley Amory, the first international congress on biological periodicity was held in 1931. Several years later, the research station and adjacent property were sold to W. Gallienne, who used the area for recreational purposes. In 1966, this individual sold the research station to a Mr. J. Seward Johnson, who donated it to the Woods Hole Oceanographic Institute for use as a research station on the ecology of Atlantic salmon.

Research continued for 18 years, from 1966 to 1984. Six universities<sup>1</sup> worked in collaboration on research that mainly concerned limnology and ichthyology, but also sedimentology, hydrology and physical geography. During this time, the Government of Québec granted the status of hunting and fishing reserve for scientific purposes to the entire 700 km<sup>2</sup> rivière Matamec watershed, as recommended by the ministère du Tourisme, de la Chasse et de la Pêche in April 1970.

Hunting and fishing was prohibited except for scientific purposes, including on the land leased to Mr. O. Gallienne and for holders and occupants of hunting grounds as well. It was during these years of research activity that the ministère du Loisir, de la Chasse et de la Pêche du Québec (MLCP) built a salmon-pass on the rivière Matamec.

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<sup>1</sup> University of Waterloo, l'Université d'Ottawa, l'Université Laval, l'Université de Sherbrooke, l'Université du Québec à Chicoutimi (UQUAC) and the Institut national de recherche scientifique-INRS-eau.



*Salmon-pass on the rivière Matamec*

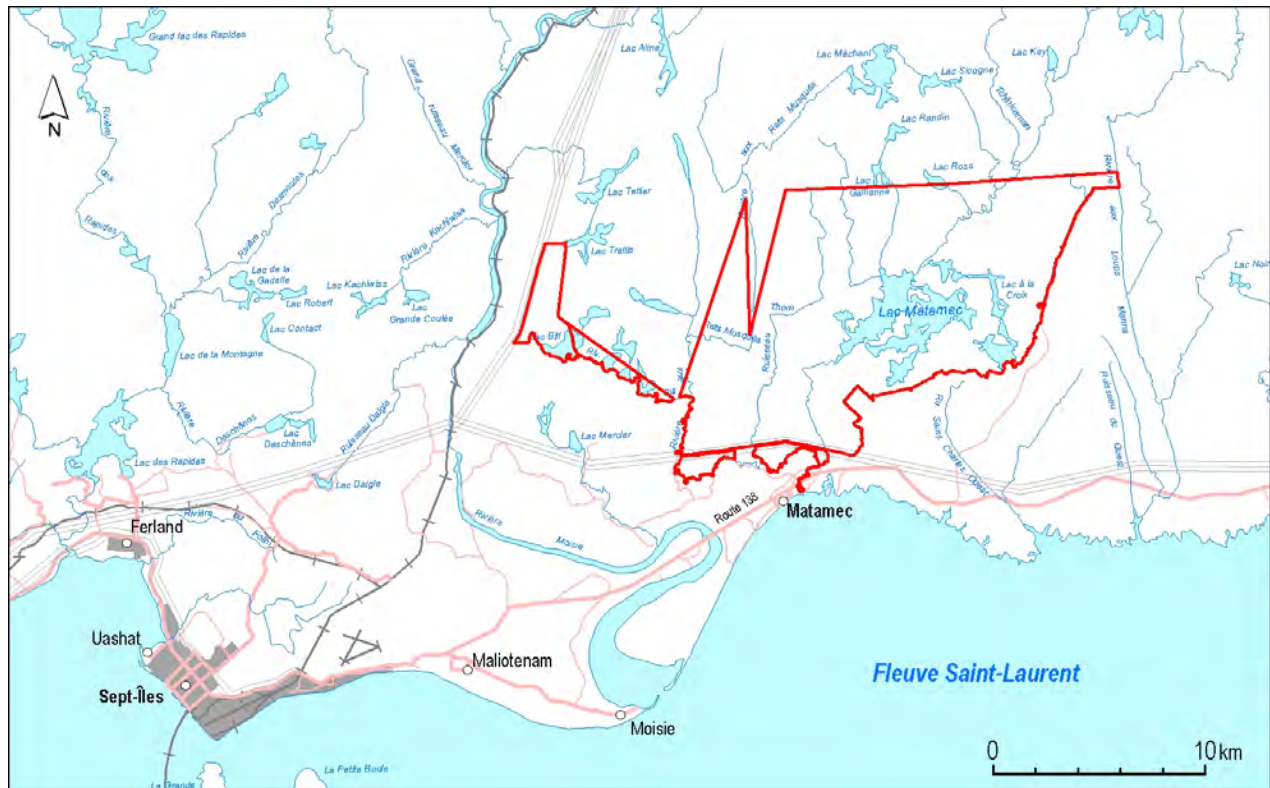
The research institute ceased operations in 1984 due to a lack of funding. Nonetheless, some activities continued, including a monitoring program that had been set up in 1981 to measure the quality of water in Côte-Nord rivers, and a biological monitoring program dating from 1987 on how biological communities react to acid rain. Both of these programs were managed by Fisheries and Oceans Canada, and were closed down in 1996.

The first steps towards creating an ecological reserve began in 1975, following a joint proposal made by the Woods Hole Oceanographic Institute in Massachusetts and INRS-eau. Twenty years later, the southern part of the rivière Matamec watershed now becomes Québec's fiftieth ecological reserve.

### 3. Plan and description

#### 3.1. Geographic location, boundaries and dimensions

The Réserve écologique de la Matamec is located in the municipality of Sept-Îles and falls within the Sept-Rivières Regional County Municipality in the Côte-Nord administrative region. It is situated between the Moisie and Loups Marins rivers and includes the southern part of the rivière Matamec watershed. The mouth of the Matamec is located some thirty km to the east of Sept-Îles.



*Location of the Réserve écologique de la Matamec*

The Réserve écologique de la Matamec 18,486 hectares make it the second largest in area in the network. This status ensures the protection of representative ecosystems of black spruce fir and black spruce and moss stands. It is also the only ecological reserve that aims to protect the habitat of Atlantic salmon by protecting the rivière Matamec, a natural salmon river that is typical of rivers of the Côte-Nord. The rivière Matamec rises to the North in the low hills near lac Cacaoni. It empties into the baie de Moisie slightly more than five kilometres east of the mouth of the rivière Moisie.

One important feature of this territory is that it remains for all intents and purposes in its complete natural state, except for some minor areas damaged long ago by fire. This natural

characteristic of the rivière Matamec watershed is of great conservation value. The Réserve écologique projetée de la Matamec abuts the Northern boundary of the ecological reserve and ensures the residual protection of the watershed.

### **3.2. Ecological profile**

The Réserve écologique de la Matamec lies mainly in the Massif du lac Magpie natural region and falls within the Plateau de la basse Côte-Nord natural province. To the West however, a small portion of the ecological reserve lies in the Plateau de la Sainte-Marguerite natural region and falls within the Central Laurentides natural province. The ecological reserve protects representative ecosystems of the Basses collines du Lac des Eudistes physiographic unit. This region is characterized by low hills, interspersed with steep-faced valleys.

#### **3.2.1. Representative features**

**Climate:** The climate is continental, cold and humid, and associated with the Boreal zone. Near the coast, the climate turns slightly milder due to the influence of the waters of the Gulf of St. Lawrence. Average annual temperature varies between  $-1.5^{\circ}\text{C}$  and  $-1.9^{\circ}\text{C}$ . The growing season is between 150 and 179 days. Average annual precipitation is around 111 cm and snowfall reaches 4.3 metres between October and May. Rainfall in the interior is one-and-a-half times that near the coast. Average annual humidity is 75%. During the cold season, dominant winds are from the West and the Northwest. During summer, Southeast and Southwest winds are more common. Average annual wind speed is around 20 km/h, but winds are stronger in winter than in summer.

**Geology and geomorphology:** The bedrock of the ecological reserve belongs to the Grenville geological province and the substrate is Precambrian. The oldest rock is found in the Southern part of the reserve. The metamorphic rock is composed of gneiss, granitic gneiss and paragneiss. Elsewhere, igneous rock is composed of anorthosite, gabronite and granite. It is estimated that the Matamec watershed that covers the ecological reserve became completely ice-free some 9,000 years BP. The last ice age shaped the Côte-Nord landscape and deeply influenced the nature and distribution of various types of deposits, including those of the Réserve écologique de la Matamec. Tills of varying thickness originated from glacial, proglacial delta, fluvio-glacial outwash plain and dead-ice moraine contact associated with the morainal complex. These soils are slightly acidic and low in nutrients. Organic deposits are concentrated in areas where the relief is undulating.



The retreat of the glacier was followed by the invasion of the Goldthwait Sea and can be divided into three major phases that began 14,000 years ago and continues to this day. The first phase corresponds to the clearing of the coastal area, the second to the development of deltas and the third to heavy erosion of sediment accumulated during the preceding phase. The Goldthwait Sea drowned the entire land of the ecological reserve watershed to a maximum height of 130 metres. Deposits of sea clay left by the Goldthwait Sea are generally found in the lowlands and sometimes between rocky outcroppings. These deposits are often covered by ombrotrophic peat bogs. Finally, along valleys and major rivers, the deposits are of fluvial, fluvio-glacial and eolian origin.

**Archaeology:** The computerized data base inventory of archaeological sites in Québec lists a prehistoric Amerindian site (12,000-450 BP) within the Réserve écologique de la Matamec, bordering the river near its mouth.

**Hydrography:** The Matamec watershed covers 685 km<sup>2</sup>. The ecological reserve protects slightly more than one-fourth of this area (184 km<sup>2</sup>). With a total length of 66.5 km, the rivière Matamec traverses the ecological reserve for some 25 km. The river is fed by two major tributaries, the more northerly rivière Tchinicanam, and the rivière-aux-Rats-Musqués that forms the natural Western boundary of the ecological reserve.

The largest lakes by size are the Matamec and the la Croix. The course of the rivers and orientation of a multitude of lakes follow the fracture zones, fault lines and breaks in the bedrock. As a rule, the lakes and rivers are surrounded by rocky, mostly steep hillsides. Lac Matamec, created by fracturing of the bedrock, reaches a depth of 105 m.



*Lac Matamec*



*Lac La Croix*

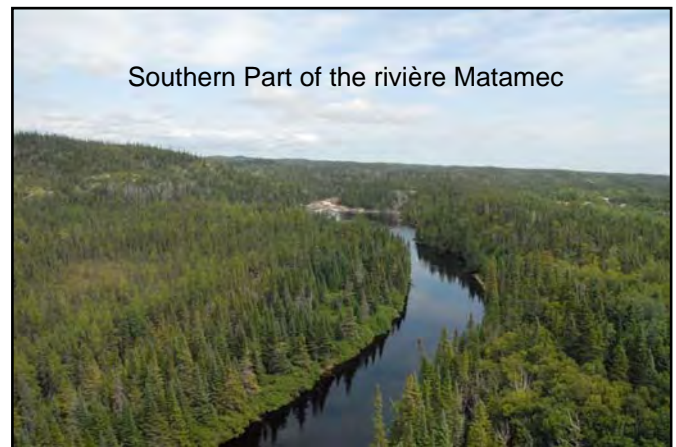
The greater part of the rivière Matamec flows over a rocky bed. Five major waterfalls characterize the upstream part of the river, where the vertical drop reaches 120 m approximately 6 km from the shoreline. The rivière-aux-Rats-Musqués empties into the Matamec at approximately 2 km from its mouth. The waters of the Matamec can be described as cold, soft freshwater, well oxygenated and low in minerals, and are typical of oligotrophic environments. The low level of mineralization means that these waters have a very limited buffering capacity.



Waterfall 1



Waterfall 2



**Plant cover:** This region is comprised of large expanses of coniferous forest. Typical plant communities are composed of pure fir, black spruce and black spruce/fir stands. Stunted black spruce or fir forests colonize areas that are exposed to wind. Near the coast, forest cover is discontinuous and peat bogs are abundant. Heath and lichen shrub or open black spruce forests form the plant cover of the ombrotrophic peat bogs. The richer, minerotrophic peat bogs support clusters of larch, alder, sweet gale and sedge.



*Unusual domed ombrotrophic peat bog located in the Southern part of the reserve.*

**Wildlife:** All typical species of the Boreal environment are likely to be found in the ecological reserve, including otter, fox, muskrat, American black bear, moose and beaver. Woodland caribou, which is an ecotype that has been designated as vulnerable in Québec, is also found here, although sporadically. Atlantic salmon and brook trout are the two typical Côte-Nord river species found in the rivière Matamec. In addition, several lakes within the ecological reserve are home to brook trout. Several other, less abundant species, such as threespine- and ninespine stickleback, rainbow smelt and Arctic char are also found in lac Matamec or its tributaries.

### **3.2.2. Remarkable features**

In summer, Atlantic salmon (*Salmo salar*) frequent the waters of the rivière Matamec. The Réserve écologique de la Matamec is the only ecological reserve that has among its objectives the constitution and protection of a habitat for Atlantic salmon.

Moreover, the flora of the Matamec watershed include some 325 vascular plant species of Boreal affinity and more than 100 species of moss and lichen. Among these, at least 25 species are found at the northern edge of their distribution range. A few relatively rare or sparse species are potentially present in the ecological reserve, including bog aster (*Aster nemoralis*), harebell (*Campanula rotundifolia*), bush honeysuckle (*Diervilla lonicera*), purple crowberry (*Empetrum atropurpureum*), pinesap (*Monotropa hypopithys*) and green-flowered wintergreen (*Pyrola chlorantha*).

## **4. Protected Status**

This area is an exceptional ecosystem worth protecting due to, in particular, its little-disturbed natural character. The ecological reserve enables the full conservation of a major part of the rivière Matamec watershed. This protected status is governed by the Natural Heritage Conservation Act. Figure 1 shows the map of the Réserve écologique de la Matamec prepared by surveyor Bertrand Bussi eres (minute 1812).

Since the protection status assigned is comprehensive, no other conservation measure is planned for this protected area. As the conservation objectives are the same as for the entire area, the ecological reserve constitutes a single zone.



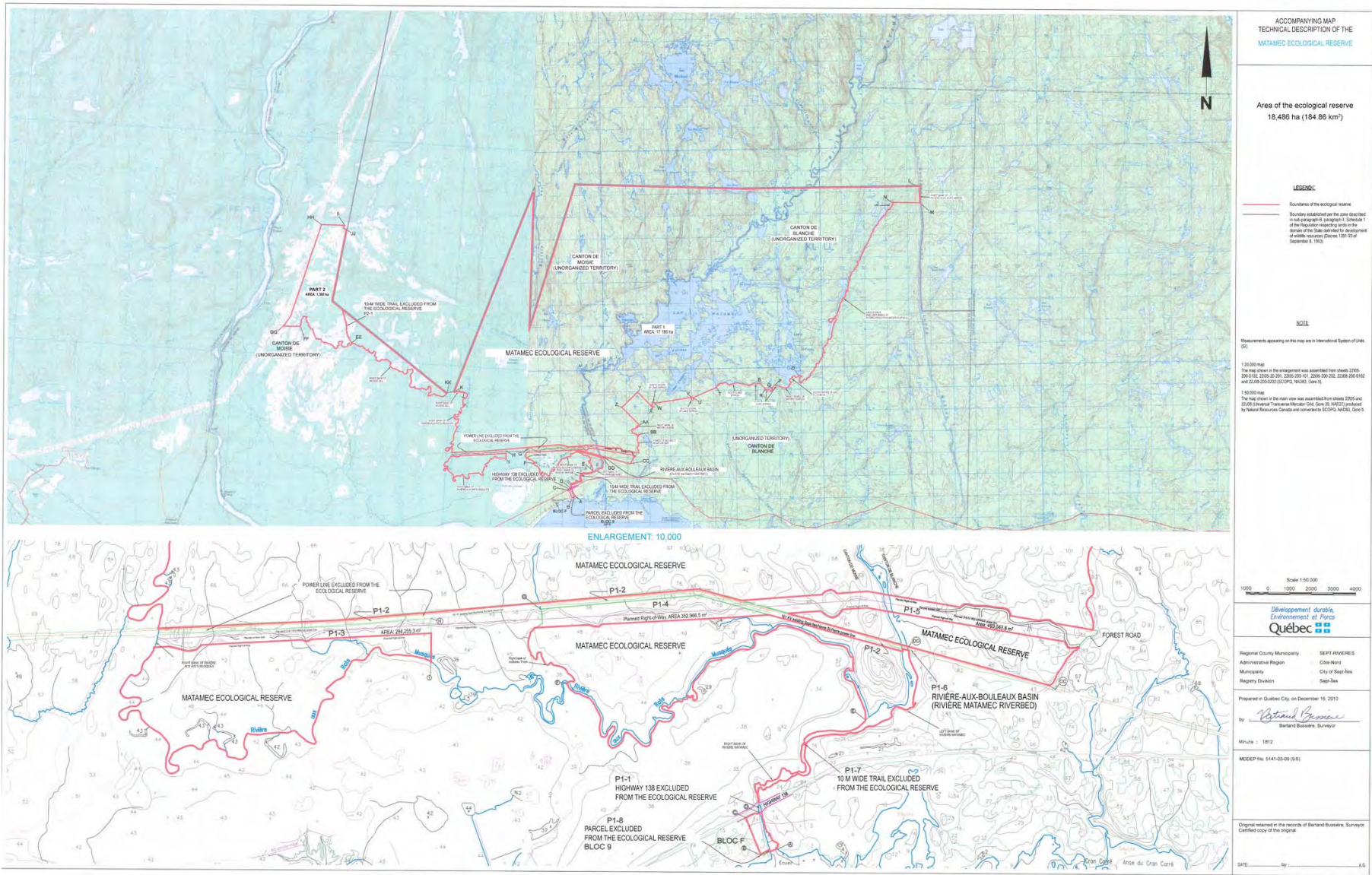


Figure 1 – Map of the Réserve écologique de la Matamec





## **5. Prohibited and permitted activities**

The following activities are prohibited in the ecological reserve:

- forest management within the meaning of section 3 of the *Forest Act* (R.S.Q., c. F-4.1);
- mining, and gas or petroleum development;
- mining, gas or petroleum exploration and development, brine and underground reservoir exploration activities, prospecting, digging or boring;
- the development of hydraulic resources and any production of energy on a commercial or industrial basis; and
- hunting, trapping, fishing, earthwork and construction activities, agricultural, industrial or commercial activities and, generally, any activity likely to alter the state or nature of ecosystems.

In addition, no person may be in an ecological reserve, except for an inspection or for the carrying on of an activity authorized under the Act.

The Natural Heritage Conservation Act prescribes that the Minister of Sustainable Development, Environment and Parks may authorize, in writing, and on the conditions the Minister determines, any activity consistent with the purposes of an ecological reserve or with its management.

## **6. Role of the Minister**

The Minister of Sustainable Development, Environment and Parks is mandated to apply the Natural Heritage Conservation Act. As such, he is responsible for managing the ecological reserves created under this act and ensures the monitoring and control of measures authorized by this law with respect to permitted activities within these protected areas. In addition, the Minister has full authority over these lands in the Domain of the State.

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