



ACCESSIBILITY TO THE NEW GEOPARQ OF SIURANA

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ABSTRACT The little town of Siurana, with just thirty houses, is located on a perched geological isthmus and surrounded with precipices. Historically, the place is famous for its castle (now dilapidated), which was the last bastion of Catalonia during the Reconquista. For only twenty years, it was easily accessible by a paved road. According to one legend, the “Moorish Queen” jumped from a cliff on her horse before falling into the hands of the Christians, leaving a horseshoe near the castle on a vertical precipice. Later, a Romanesque Church was built there in the twelfth century.

1. The local environment is urban protected, but geological protection is also needed to preserve the spectacular stone strips down below at the water reservoir. It is necessary to improve the accessibility of Siurana as a geological park by rebuilding old foot paths and reinforcing the steep enclave. The geological features are highly visible and spectacular: rolling hills of brown slate followed by wind-carved, red sandstone cliffs crowned with white limestone.
 2. Accessibility can be developed by basing on existing roads and making new ones that are necessary to enjoy the park and comply with fire regulations.
 3. In the town, it is necessary to build roads accessing the treatment plant, and establish a Cultural Interpretation Center dedicated to local history. Also, a parking lot for around twelve vehicles should be constructed at the lower level, where it would be protected by trees.
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4. A viewpoint at the precipice in Salto de la Reina Mora has also been proposed. It would offer a view of the castle and the precipice in all their glory, but would require a special access ramp.
5. To make visits easier and more enjoyable, it is proposed that visitors take electric vans up the road (8 km) and descend by a New Cable Car between Siurana and Cornudella del Montsant at the base of the mountain, where the car park is located.

KEYWORDS: Siurana Castle; accesibility; old paths; Interpretation Center

1. THE GEOLOGICAL ENVIRONMENT OF SIURANA



Aerial photo of Siurana with its precipices (dark). After Google Maps.
The geological environment of Siurana has seven levels:

VERTICAL VIEW OF SIURANA AND ITS CLIFFS

- N7. NIVEL PUEBLO, IGLESIA Y CASTILLO SIURANA (750m)
- N6. NIVEL PARTE BAJA DE LA PUNTA (ROCA CALIZA) (725m)
- N5. NIVEL FINAL ROCA ARENISCA E INICIO ROCA CALIZA (675m)
- N4. NIVEL PERIMETRO DE LA PORTELLA (ARENISCA) (660m)
- N3. NIVEL FINAL PIZARRA E INICIO ROCA ARENISCA (600m)
- N2. NIVEL INTERMEDIO DE LA PIZARRA (550m)
- N1. NIVEL PUEBLO DE CORNUDELLA Y PANTANO (500m)
- N0. NIVEL AGUA PANTANO (460m)



Fig. 1. South elevation. A. CHURCH; B. PRECIPICE OF THE MOORISH QUEEN; C. CASTLE; N4. SANDSTONE ROCK; N6. LIMESTONE

The area between Siurana and Cornudella clearly displays various geological stages in its stone strata [1].

The considered geological stages of the earth are:

PRECAMBRIAN	4,000	million years
PALEOZOIC	300	million years
MESOZOIC	200	million years
TERTIARY (CENOZOIC)	3.6	million years

The characteristics of the visible strata show that its development took place during the MESOZOIC and partly in the PALEOZOIC.

MESOZOIC

CRETACEOUS	66-145 million years
JURASSIC	145-200 million years

	KEUPER	201 million years	
TRIASSIC	MUNCHESKAL (white limestone)	249 million years	N4
	BUNTSANDSTEIN (red sandstone)	250 million years	N6

PALEOZOIC

	PERMIAN (slate)	260-300 million years	N1-N2
	CARBONIFEROUS	300-328 million years	

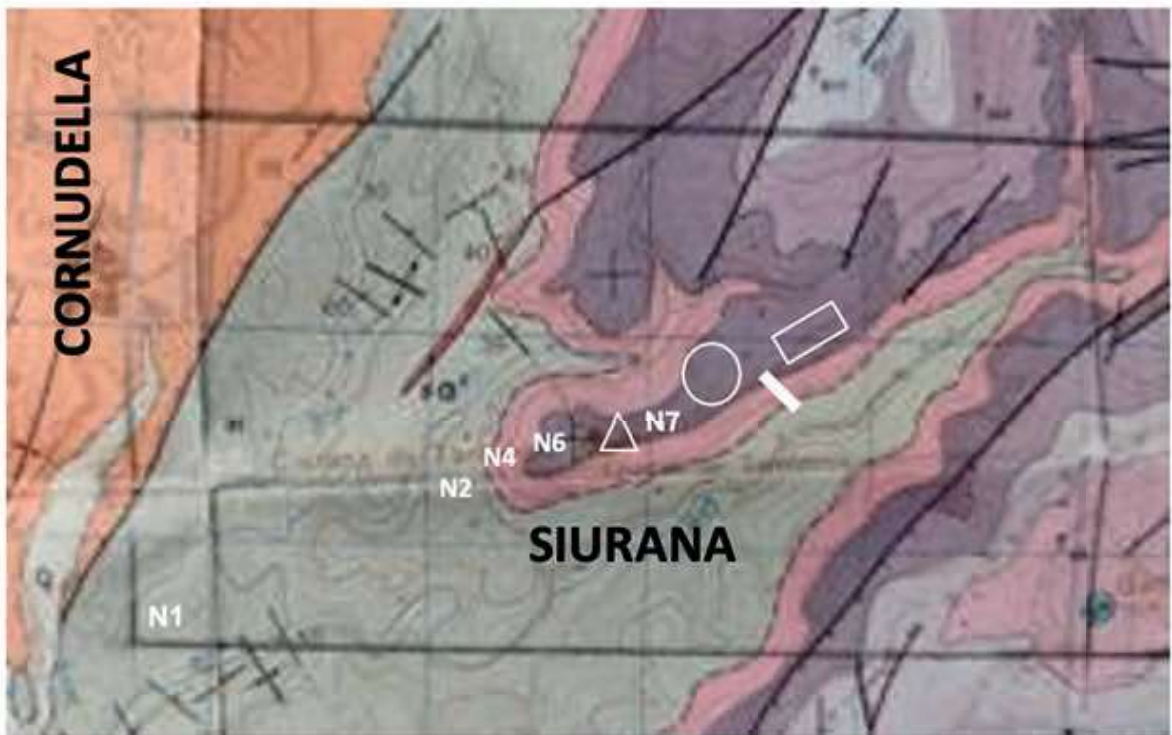


Fig. 2. GEOLOGICAL PARK WITH N1 and N2. BOARD, N4. SANDSTONE, N6 and N7. LIMESTONE CHURCH (triangle), VILLAGE (circle), CASTLE (rectangle), VIEWPOINT Salto Reina Mora (white rectangle).



Fig. 3. Sandstone rock between N3 and N4 N3 Y N4 (red).



Limestone between N5 and N7 MUNCHESKAL (with molluscs)



Fig. 4. View of Siurana at the top of the cliff with the swamp below; Between levels N0 and N7 [*].



Fig. 5. View of Siurana above the clouds, overlooking the swamp [*].

2. RECOMPOSITION OF HISTORICAL ACCESSIBILITY

Apart from the existing eight-kilometer road between Cornudella (the main town in the area) and Siurana (a district of Cornudella), and given that Siurana is a rocky peninsula that becomes a cul-de-sac in case of fire, it is necessary to revitalize the old historic roads that climb through the rugged landscape.

Next, existing paths should be redeveloped and new ones built. The complex would benefit from a cable car or aerial, as indicated on the map of Cornudella del Montsant [2].

1. CN1. Bike lane from the north side of the reservoir to the foot of the castle.
2. CN2. Old royal pedestrian road from Cornudella to Siurana.
3. CN3. Existing track in Plá de la Malata under the red cliff.
4. CN4. Step through the outer edge of the red cliff.
5. CN5. New path for climbers next to the red cliff.
6. CN6. Descent to the south of the Church, leading to the reservoir, by elevator, stairs and footpath.
7. CN7. Path under the Punta for an aerial or zip line between Siurana and Cornudella.

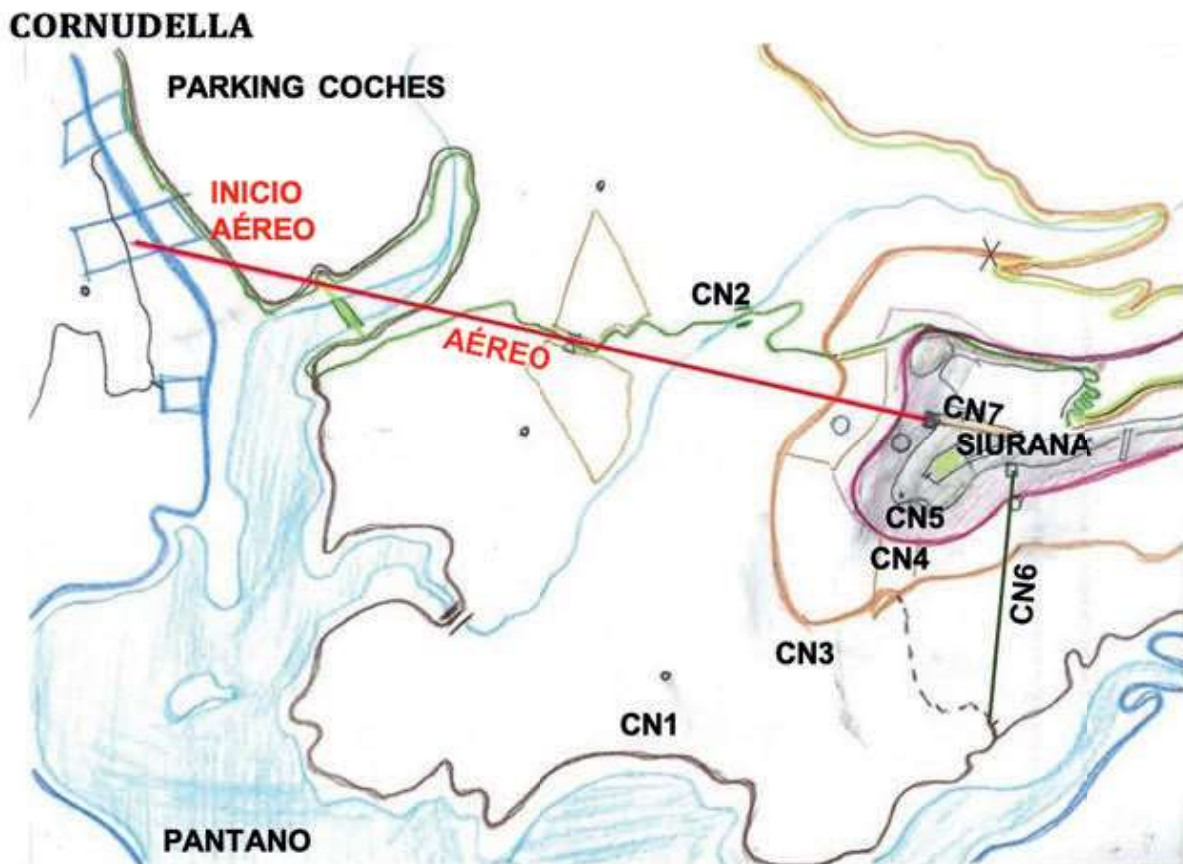


Fig. 6. Proposed roads between Cornudella and Siurana.

3. EXISTING AND PLANNED ROADS AROUND THE TREATMENT PLANT AND CIS IN SIURANA

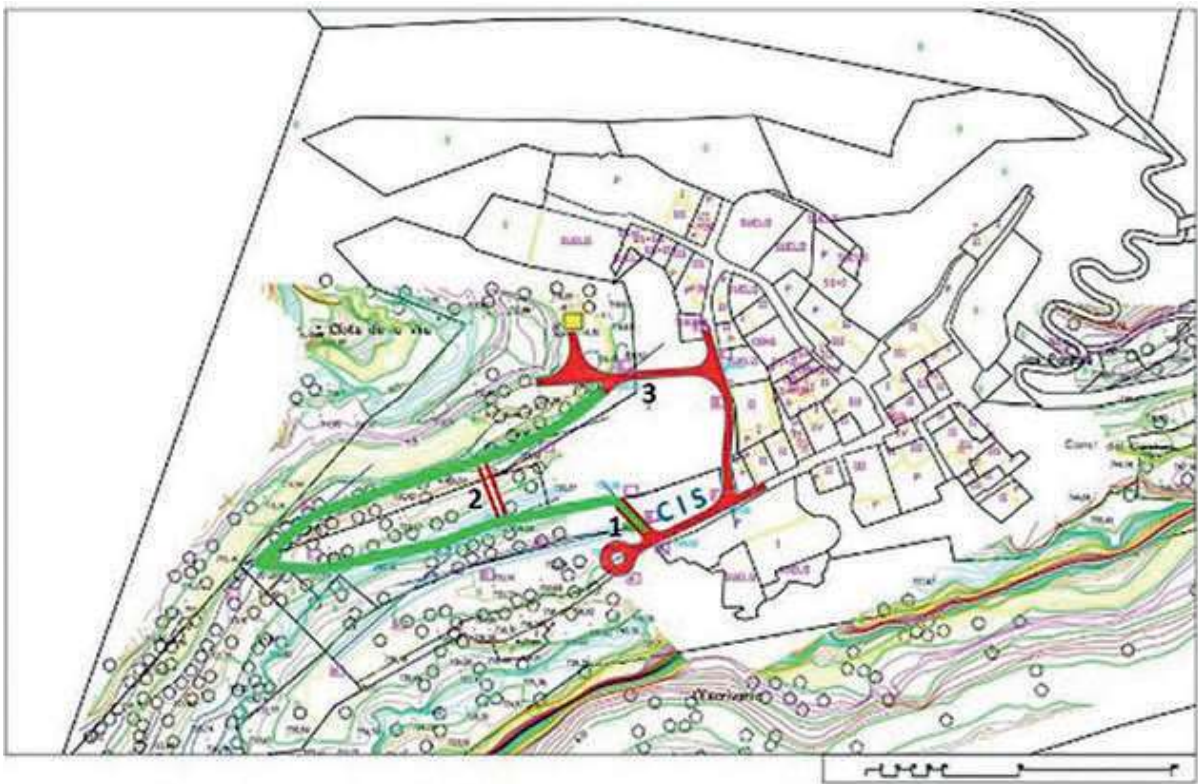


Fig. 7. Proposed maintenance paths 1, 2 and 3 (double line) around the Treatment Plant, shown on a cadastral plan [3]. Ground site proposal for the CIS (Siurana Interpretation Center) Church (triangle). Town (circle). Castle (rectangle).



Fig. 8. View of Mayor de Siurana from the point of access [4].

PROPOSAL FOR THE SIURANA INTERPRETATION CENTER (CIS) INCORPORATING THE HISTORICAL ARCH



Fig. 9. Proposal for the Siurana Interpretation Center (CIS), featuring the entrance arch.



Fig. 10. View of the access point, where a car park for twelve vehicles should be built below, hidden under trees.

4. JUMP OF THE MOORISH QUEEN

SIURANA CASTLE [5] [6] [7]. NEXT TO IT, A VIEWPOINT FOR VISITORS IS PLANNED WHERE THE QUEEN MORA MADE HER JUMP

Attracting visitors necessitates making the path accessible for the disabled.

MIRADOR DEL SALTO DE LA REINA MORA SOBRE EL VACÍO DE SIURANA



Vista del Castillo de Siurana desde el Mirador acristalado del SRM.



Planta del Mirador acristalado sobre el vacío del SRM en Siurana.

5. CABLE CAR BETWEEN CORNUDELLA AND SIURANA, ROADS TO BE RENOVATED, AND SIURANA'S LANDSCAPE



Fig. 13. SIURANA GEOLOGICAL PARK AND ITS SURROUNDINGS: CHURCH (triangle), VILLAGE (circle), CASTLE (rectangle), VIEWS FROM ABOVE (west- and south-pointing arrow) MIRADOR Salto Reina Mora (red stripe) ROAD for electric vans (yellow) – 8 km. CABLE CAR (long red line). PARKING (A).



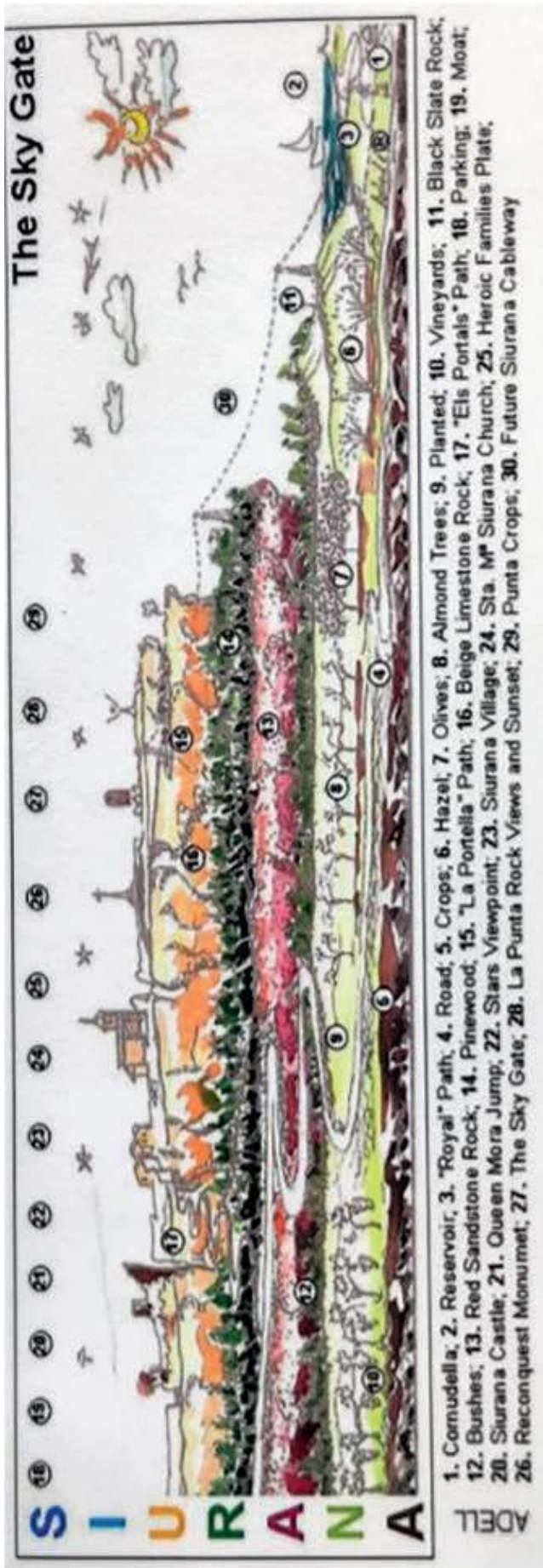
Fig. 14. View of the lower reservoir from the top of Siurana. The cable car cannot be seen from this perspective as it is on one side.



Fig. 15. Siurana and its ruined castle in the background [5][6][7].



Fig. 16. View toward west: the Siurana Church [8] at the precipice and the reservoir below.



CONCLUSIONS

As the drawing of Siurana's northern elevation shows, the town is dependent on the City Council of Cornudella del Montsant, located at its foot (8 km by road or 1,400 m by air). This geological environment is unique and the Geopark should request UNESCO protection as a world monument.

Until now, characterization covered only landscape and historical aspects (village, castle and church) [9], disregarding the geological aspect of surroundings, which is nevertheless precisely what gives this place its original character, as shown in the first section.

In 2016, the "Historical Characterization of the Priorat- Montsant-Siurana landscape" was proposed, but it appears too broad and does not account for the site's geology, as emphasized here. The UNESCO candidacy was withdrawn in 2022, probably due to alleged lack of singular character.

With the documentation that is now provided, creation of a Geopark in Siurana and Cornudella, celebrating its original geology and history, will undoubtedly be well received for approval as a UNESCO candidacy.

To provide an idea of the complex and its geological environment, two videos are available online [10] [11].

This proposal for new roads, along with a reassessment of the geological environment, also aims to prevent Siurana from being a cul-de-sac by providing alternative exits in the event of fire spreading in the surrounding forests. In turn, the route depending on electric vans and travelling by air would help to avoid traffic jams, lower carbon emissions, and control the flow of tourists from the Cornudella car park below.

It has been evaluated in another document that the plans are sustainable owing to solar, water and wind energy systems that do not alter the surrounding natural landscape yet take advantage of its energy potential, for example thanks to the unevenness of the place. This could help Siurana become a pioneering town that boasts a fully sustainable energy supply.

The approach to Geoparq outlined here has been endorsed by the Adiprope Foundation, which promotes the dissemination and promotion of Spanish UNESCO monuments and other sites of note. The Foundation is chaired by Ignacio Buqueras i Bach, whose chairman of the advisory board is Federico Mayor Zaragoza.

Indeed, the elevation that offers breath-taking views over the precipice may resemble the “Gates of Heaven.”

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[*]Fotografías de www.joancapdevilavallve.com