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"You Know the Pyrenees by Day - Come See Them by Night..." Reflections on *in visu* Artialisation of Nocturnal Skyscapes in the Pyrenees

Bruno Charlier

Introduction

- 1 As an introduction and an illustration, we will discuss the images taken of two iconic peaks in the French Pyrenees, photographed with the Milky Way arching above : the Pic du Midi d'Ossau (Roubinet, 2015) and the Vignemale (Bourgeois, 2012).

Photos 1a et 1b – The Pic du Midi d'Ossau (1a) and the Vignemale (1b) under the Milky Way. Two archetypal views of nocturnal skiescapes

Photograph reproduced with the gracious permission of the author. Credits : Matthieu Roubinet (2015).

Photograph reproduced with the gracious permission of the author. Credits : t Nicolas Bourgeois (2012).

- 2 In the autumn of 2015, the photograph taken by M. Roubinet (photo 1a) won three awards in a competition organised by *Pyrénées Magazine* as part of the Mountain

Photography Festival held in the town of Cauterets (Hautes-Pyrénées): the first prize for the "Night" category, the jury prize and the public choice prize.

- 3 That M. Roubinet's photograph should have won an award in the Pyrenees was not purely a chance occurrence. As R. Bénos and S. Challéat have pointed out (2014), the award was consistent with an international trend favouring distinctiveness and recognition that has produced awards for similar photographs, some of which have been posted to the TWAN (*The World At Night*) website, an image bank of several thousand photographs taken across 5 continents.
- 4 Although it did not win a prize, the Vignemale photograph (photo 1b) has been widely and successfully distributed in the Pyrenean valleys and used in different phases of the Pic du Midi IDSR project to illustrate several promotional documents. I am currently one of the 41 photographs in the exhibition on night skies in the Pyrenees (*Paysages célestes nocturnes. Vous connaissez les Pyrénées le jour, découvrez-les la nuit...*). We have chosen to discuss these two photographs as an introduction to our article because, in addition to their obvious aesthetic qualities, they represent the archetype of a celestial "nightscape" (Charlier, Bourgeois, 2013a), meaning the representation of a landscape at night against a background of a starlit sky or celestial objects or phenomena (the Milky Way, the moon, constellation(s), shooting stars, aurora borealis, zodiacal light, a comet, etc.).
- 5 This type of representation is now rapidly developing in every kind of landscape genre - panoramic, specific sites, patterns - (THEMA, 2005), usually through photography but also in paintings (Nordgren, 2010), a trend that reflects a process of *in visu* artialisation (Roger, 1998) that can be quite intensive (Bénos, Challéat, 2014) when applied to the "manufacture of a unique nocturnal territorial identity" (Challéat, 2016), as in the Pyrenean example analysed here.
- 6 The points of discussion presented in this article stem from an analysis of the content of the 41 photographs making up the exhibition and the brief descriptions written by the photographers¹. These points are intended as an outline of what is meant by a "nocturnal skyscape" as opposed to the more broadly encompassing "nightscape". Two issues arise here. The "nightscape" concept had already been discussed in the pioneering work of L. Bureau (1997) and L. Gwiazdinski (2005), but it has now entered a new dimension with its recent introduction into the French Environment Code (Article L. 110-1) following the adoption in August 2016 of the law on biodiversity, nature and landscape restoration. Secondly, as we are discussing a case where the nocturnal nature of the landscapes is specified by particular attributes, it is important to understand the uniqueness of the constituent elements, meaning and experience that may be conveyed by the "starscape photographers" (Laveder, Jamet, 2018) who, through their art, are building up their representational models. According to S. Gagnon (2007), this "aesthetic capture" of a starlit mountainscape could help to forge a new understanding of the Pyrenean landscape.

Document 1 – "Half the park is after dark. See the Milky Way in America's National Parks". An example of in visu artialisation of a nocturnal skyscape through a painting

Poster reproduced with the kind permission of its author. Credits: Tyler Nordgren.

"You know the Pyrenees by day - come see them by night..."

- 7 The exhibition was set up in 2012 by the *Pays de Lourdes et des Vallées des Gaves* (PLVG). It was intended to help promote the project for the Pic du Midi IDSR and to accompany two light pollution awareness campaigns entitled *Le retour à la nuit et aux étoiles* and *Permission de Minuit !* (Document 2).

Document 2 – Covers of the flyers distributed by the organisers (Pays de Lourdes et des Vallées des Gaves) for the Retour à la nuit et aux étoiles (2a) and Permission de Minuit ! (2b) events

Credits: Pays de Lourdes et des Vallées des Gaves.

Credits: Pays de Lourdes et des Vallées des Gaves.

Corpus of the exhibition

- 8 This is a travelling exhibition provided free of charge by the PLVG, to be shown in the Pyrenean valleys and beyond. Initially comprising a dozen or so photographs, it has gradually grown and now includes 41 photographs by 8 different photographers (PLVG, 2017). All are men and two of the eight are professionals. The other six are amateurs, three of whom are also highly experienced amateur astronomers (some run activities at the Pic du Midi Observatory). The group also includes an astrophysicist and the project manager for the Pic du Midi ISDR. It is interesting to note that the last three photographers who joined the exhibition have a very different profile, having discovered starscape photography after working mainly on nature and landscape photography in daylight. Some live and work in the valleys of the Hautes-Pyrénées *département* and all have a passion for mountains in general and the Pyrenees in particular. They say that photographing nocturnal skylines is a way of "bringing a new dimension" to the landscapes of the Pyrenees (Interview).
- 9 The photographs exhibited from 2012 to 2017 have not only increased in number: with the new photographs came new photographers with different ways of seeing new sites and different ways of framing landscapes. While the photographs in the early editions of the exhibition were of nocturnal skylines centred on the Pic du Midi and its observatory and some of the other well known peaks, the more recent arrivals have brought more diversity and more of the human element. This is a change that matches the progress of the ISDR project, reflecting a shift from the astronomer's approach to the night sky, historically linked to the Pic du Midi observatory, to a more geographical approach in which the sky is presented as a feature of the mountain landscape and even revealed as a resource that mountain areas can put to use:
 - either because little needs to be done to get rid of light pollution above the valleys and villages, as mentioned in one of the photographers' descriptions: "Some villages turn off some of their street lights so that the night sky can be better seen, which is what made this photo possible (...)". (RR, *La Chapelle Solferino à Luz-Saint-Sauveur*, 2015).
 - or because watching the night sky is already part of the mountain experience for some who live in the valleys and for some professionals (e.g. shepherds, wardens in the refuges, ski resort employees), as indicated in two of the photograph descriptions: "Living in a Pyrenean village is a privilege (...) Just a few steps from the house you look up and there's the sky, the real sky, the sky you never see now down on the plain, that's vanished from our consciousness. » (NB, *Estives avec vue*, 2013). "When you're working a snow compactor at the Gavarnie-Gèdre ski resort and the weather's right, you're working with your head in the stars" (PM, *Travailleurs de Nuit*, 2015).

Photo 2 – "When you're working a snow compactor at the Gavarnie-Gèdre ski resort and the weather's right, you're working with your head in the stars"

Photograph reproduced with the kind permission of its author. Credits: Pierre Meyer (2015).

Locations

- 10 The places where the photographs were taken can be accurately located from the photo descriptions (map 1). All are within the perimeter of the Pic du Midi ISDR, in or near the central zone, on the observatory site and in the high valleys of the Toy district (Gavarnie, Troumouse, Marcadau, etc.). Very few of the photos (2/41) were taken over the border on the Spanish side.

Map 1 – Locations of the photographs in the exhibition on Pyrenean nightscapes (*Paysages célestes nocturnes. Vous connaissez les Pyrénées le jour... découvrez-les la nuit*)

Credits: Charlier (2017). Source : Charlier, Bourgeois, 2013b.

- 11 One reason for this is that the exhibition was set up by the PLVG, and the choice of landscapes to be exhibited and promoted focused essentially on its territory. But the other reason has to do with the exceptionally starry skies found over some iconic Pyrenean sites (map 1). Developing the ISDR for tourism by combining star-gazing with open-air activities draws on this kind of landscape promotion (Debarbieux, 2007) by offering nocturnal walks and giving directions to "star-gazing spots" that can be reached by car, and which correspond to recommended sites for observing stars (Documents 3 and 4). Such initiatives for identifying and providing directions to dark-sky viewing and star-gazing sites are still in their infancy in the Pyrenees but there are already numerous examples elsewhere, as in the Yosemite national park in the US, Canada's Jasper national park or, in Europe, Scotland's Galloway Forest national park and the Exmoor national park in south-west England.

Document 3 – "Refuge under the stars": an abandoned project

With support from the Pays de Lourdes et des Vallées des Gaves and the Pyrenees National Park, the wardens at the Oulettes de Gaube mountain refuge –the starting point for climbers aiming for the Vignemale peak– launched a "refuge under the stars" project to link Pyrenean climbing with a high-altitude observatory in the heart of the Pic du Midi IDSR. Sadly, the project had to be abandoned.

Credits: Pays de Lourdes et des Vallées des Gaves (2016).

Document 4 – The "best stargazing spots" that can be reached by car, as listed in the brochure presenting the *Permission de Minuit !* Programme

Nuits étoilées

★ ★ ★

Meilleurs Spots Astro

Lac de Lourdes
Pic du Jer (Lourdes)
Hautacam
Col des Spandelles
Col du Soulor
Col de Couraducque
Lac d'Estaing
Lac du Tech
Pont d'Espagne (Cauterets)
La Fruitière (Cauterets)
Luz-Arden (Bardères)
Tournaboup (Bardères)
Col du Tourmalet
Pic du Midi de Bigorre
Tromouse (Gèdre)
Station des Espézières à (Gèdre)

accessible en voiture

Nuit dans le vaisseau des étoiles à 2.877 m d'altitude !

Passer une nuit au sommet du Pic du Midi de Bigorre pour découvrir l'atmosphère particulière d'un site astronomique unique à 2.877m d'altitude.

Au programme si vous embarquez dans le vaisseau des étoiles : visite de l'espace muséographique, coucher de soleil, repas traditionnel, soirée astronomie, nuit en chambre individuelle, petit déjeuner et lever de soleil sur les montagnes, visites des coupôles de l'observatoire scientifique.

www.picdumidi.com
Tarifs & réservations Tél : 05-62-56-70-00

Nuit en refuge de montagne

Passer une nuit en refuge, c'est avoir la chance d'observer le coucher de soleil sur les sommets, sentir les parfums du crépuscule du soir, et voir apparaître les étoiles une à une puis notre galaxie la Voie Lactée toute entière.

Une expérience à vivre entre amis ou en famille et avec les enfants.

Liste des refuges, des guides et accompagnateurs en montagne disponible dans les offices de tourisme.

Nuit dans le Refuge aux Étoiles

Dans la Vallée de Cauterets, le refuge des Oulettes de Gaube a été rebaptisé le Refuge aux Étoiles. Les gardiens du refuge des Oulettes de Gaube, tous deux passionnés d'astronomie, y ont installé un véritable observatoire équipé de matériel très performant.

Tous les soirs de beau temps après le repas, observation du ciel avec Boris le gardien dans un cadre somptueux au pied du Vignemale.

Tél : 05-62-92-62-97 / 06-01-80-39-26
<http://lerefugeauxetoiles.over-blog.com/>

Portraits d'artistes

★ ★ ★

Ces photographies du visage des Pyrénées de nuit vous ont fait rêver ? Vous avez désormais la possibilité de prolonger le rêve en commandant des tirages d'art numérotés et signés depuis les sites Internet de deux jeunes photographes locaux talentueux :

Tristan Perelra www.tristanperelra.com
Pierre Meyer <http://pierremeyerphotos.com>

Credits: Pays de Lourdes et des Vallées des Gaves (2016).

The characteristics of nocturnal skylscapes

- 12 As pointed out by L. Bureau (1997), "night is not the negative phototype of daytime (...). These are (...) other and completely different landscapes that unfold before our eyes". We will attempt here to assess the difference between day and night and between night with and without starry skies through the example of nocturnal skylscapes in the Pyrenees. Setting aside some features found only in particular regions (like the aurora borealis in nocturnal skylscapes in Scandinavia), our first comparisons, drawing on image banks like *The World At Night*², show that the nocturnal skylscapes of the Pyrenees, as shown in the exhibition, match many international landscape standards quite closely and can therefore be usefully examined for their morphological similarities.

Opening windows to the universe

- 13 As pointed out by M. Besse (2009), quoting G. Wajcman (2004), "Landscapes and windows go together". It is worth noting that many dark-sky parks and reserves that have opened since 2000 owe their existence to the idea of "opening windows to the universe". These parks and reserves are quite different to the protection areas around astronomical observatories. They are at once a new type of protected area and a new category of existing protected natural areas (national parks) that are increasingly seeking recognition for the quality of their night skies as well as for their environment

and their nightscapes through national or international labelling schemes (Charlier, Bourgeois, 2013a et 2013b).

- 14 In Europe, the relevance of a foundational landscape project based on creating a dark-sky reserve became apparent in 2011 with the official approval of the Exmoor ISDR in the UK's Exmoor national park in south-west England. The aim of the project, which was promoted by the park's landscape officer, was clear : to show the national park's landscapes in a different light (document 5), following an approach already observed in north America and neatly captured in the slogan used in the USA: "half the park is after dark" (document 1).

Document 5 – Exmoor Dark Skies : Our Window Into a Universe of fragile Starlight

The metaphor of "opening window to the universe" is used in the title of a publication on rediscovering landscapes and natural areas by night in the Exmoor national park and ISDR (Jay, 2014).

Beyond daytime landscapes seen in the dark

- 15 On close examination, it is clear that the photographs making up the exhibition are not simply pictures of iconic Pyrenean sites under a starlit sky. What the photographs seem to capture are a mountain landscapes of a different kind, not just "nightscapes" and not just daytime landscapes seen in the dark. These characteristic night skies therefore represent a specific landscape category and need to be considered in their entirety as conveying a meaning that encompasses all that is both construed and material in our relationships with landscape. These subtleties are perhaps best illustrated by the *Villes éteintes/Darkened cities* series photographed by Th. Cohen (Cohen *et alii.*, 2012), in which the photographer shows the world's largest cities (Hong-Kong, Paris, New-York, Tokyo etc.) in complete darkness, lit only by "the dark light falling" from the star-studded sky above³. The whole gives the urban landscape a quality that is at once dreamlike and

apocalyptic. These photographs clearly show the difference between classic representations of - often urban - landscapes photographed at night to bring out the effects of lighting up a city or site through various features that artificial lighting endows with an aesthetic interest, and landscapes seen at night in starlight. In the first case, the nightscape is typically a night-time version of a daytime landscape, which is transformed into a lightscape as defined and analysed by S. Mallet (2011), E. Giordano and D. Crozat (2017). In the second case, the improbable - but nevertheless possible - black-out of an entire city creates a nocturnal skyscape as we understand it here: it not simply a daytime landscape seen at night. Thus, a nocturnal skyscape is not just a nightscape, it is a specific category that needs to be understood and analysed as such.

The constituent elements of a nocturnal skyscape

- 16 Clearly and demonstrably, while a landscape is construed in relation to an idea of what is seen, what is actually visible also has a material dimension that cannot be ignored when analysing a landscape. As pointed out by Serge Ormaux (2005), this "morphological, object-related and irreducible" dimension [...] is inherent to the equation". In the case of nocturnal skiescapes, this analysis takes us to a meeting-point between geography and astronomy, which illustrates, with great clarity, the definition of a landscape given by Michel Carajoud (2010) as "the place where earth and sky meet". Thus, logically enough, we will now examine the constituent elements of this meeting-ground, in two stages to consider both the "celestial" and "terrestrial" parts of these landscapes. For this morphological part of our analysis, we draw on studies of a quite different landscape category - the underwater landscape. There are a number of analogies of interest between the two categories: ways of seeing, patterns of experience (Bigando, 2014) and natural and technical filters operate in the same way and create the necessary conditions for unique experiences of landscape and their *in visu* artialisation (document 6).

Document 6 – « Plongez dans le Cosmos à Luzéa ». This underwater visual and sound experience to discover photographs of the universe has been proposed by the PLVG at the Luz Saint-Sauveur spa center (Luzéa)

PLONGEZ DANS LE COSMOS à Luzéa

Voyagez dans le cosmos en apesanteur!
du 11 Mars au 3 Mai

Réalisez votre rêve et glissez-vous dans la peau des spationautes en apesanteur dans l'espace. Plongez dans le cosmos et faites un voyage inédit dans l'histoire de l'Univers à la découverte de notre galaxie, des nébuleuses, des comètes, des trous noirs, des planètes...

Une expérience musicale et cosmique!

Un conseil : pour mieux profiter du spectacle, pensez à apporter : lunettes de piscine, masque de plongée, tuba

Tarifs entrées balnéo :
- Adulte : 10 € / Enfant (6-15 ans) : 10€ / Duc : 35 €
- Famille (2 adultes + 1 enfant) : 44,00 €
- Famille (2 adultes + 2 enfants) : 44,00 €
- Pass 3 entrées : 18 €

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LES THERMES DE LUZ SAINT SAUVEUR

Crédits: Pays de Lourdes et des Vallées des Gaves.

The "celestial" part of nocturnal skylscapes

- 17 The "celestial" part of nocturnal skylscapes is linked to various celestial objects and phenomena that can be listed quite exhaustively. Some are only visible under certain light conditions (Milky Way, zodiacal light, air glow), at certain latitudes (aurora borealis), some can be seen at regular intervals (shooting stars), or periodically in some regions of the world (lunar and solar eclipses), or only very rarely (comets). Apart from the moon, all are highly sensitive to light pollution which can partly or entirely obscure them, just as natural filters (like water turbidity) can blur perceptions of underwater landscapes. As in the latter, the limits of retinal perception can constrain our vision of nocturnal skylscapes, hence the need for technical filters. Even with excellent eyesight, it is not always possible to *see in situ* what many photographs actually *show*:

"Three o'clock in the morning - at dead of night, photography reveals colours of the sky that are invisible to the naked eye" (JFG, *Nuit à Troumouse* 3, 2014).

- 18 In addition to increasingly sensitive camera sensors, exposure times can be long to very long (using a tripod, composing several images) have to be considered:

"the exposure time had to be long, really long, to capture enough light to reveal these shooting stars..." (PM, *Les étoiles filantes de Gavarnie*, 2013).

Photo 3 – "the exposure time had to be long, really long, to capture enough light to reveal these shooting stars..."

Photograph reproduced with the kind permission of its author. Credits: Pierre Meyer (2013).

- 19 As well as long exposure times, the photographer may use post-processing to improve the sharpness of the image, and sometimes even art photography techniques such as light painting. These were used for 4 of the photographs in the exhibition (TP, *Série Cabanes* 2014-2015). The result is the particular dreamlike quality of these nocturnal skylscapes that perfectly illustrates the *in visu* artialisation process (photo 4).

Photo 4 – The shepherd's hut subtly illuminated by the photographer and symbolically by the star

Photograph reproduced with the kind permission of its author. Credits: Tristan Pereira (2015).

- 20 Our analysis of the corpus shows a significant convergence of landscape motifs (table 1). The Milky Way is undoubtedly the object most frequently used to compose nocturnal skies in general and those of the Pyrenees in particular, and views of our galaxy are often featured in the composition of award-winning photographs. We have already mentioned the success of M. Roubinet's photograph (Photo 1a), but we should also mention the international prize in the "Beauty of the night sky" category awarded to Luc Perrot in 2014 for his view of the Piton de la Fournaise, also under the Milky Way.

Table 1 – The "celestial" and "terrestrial" parts of the Pyrenean nocturnal skies in the photographs displayed

Typology of the locations photographed ("terrestrial" part)	Typology of celestial objects and phenomena photographed ("celestial" part)									Total
	Milky Way	Starry sky without Milky Way visibility	Sky coloured by light pollution	Moon or moonlight	Well identified star(s) and/or constellation(s)	Shooting stars	Diffuse light phenomena (air glow and zodiacal light)	Planet(s) visible to the naked eye (other than the moon)	Other celestial phenomena like thunderstorm	
Peaks well identified by name	7	-	-	2	3	-	1	-	1	14
Mountain vista (southern horizon)	6	-	1	1	2	-	-	-	-	10
Pic du Midi Observatory	5	2	1	-	-	-	-	-	-	8
Scene with visible or suggested human presence (e.g. driver of snow compactor)	4	1	1	1	1	-	-	-	-	8
Vista over the plain (northern horizon)	1	1	4	-	-	-	-	-	1	7
Iconic peaks (e.g. Vignemale)	3	1	-	-	-	2	-	-	-	6
Lake, torrent, waterfall	6	-	-	-	-	-	-	-	-	6
Hut(s)	-	4	-	-	-	-	-	-	-	4
Well identified places (e.g. mountain pass...)	2	1	-	-	-	-	-	-	-	3
Village(s)	1	-	-	1	-	-	-	-	-	2
Other	1	-	-	-	-	-	-	-	-	1
Total	36	10	7	6	6	2	1	-	2	

The line and column totals do not refer to the number of photographs in the corpus but to the number of times the places and the celestial phenomena or objects appear in the photographs.

Credits : Bruno Charlier (2017).

- 21 This particular interest has to do with aesthetic considerations, but also with the fact that the sight of our galaxy has become an extra-ordinary occurrence. Although the Milky Way could certainly still be seen in city skies in the second half of the 19th century (document 7), the possibility of seeing the celestial environment we live in with the naked eye has been totally lost to most people across the world (Cinzano *et al.*, 2001). Today, being able to see a celestial object like the Milky Way has become such a rarity as to be eminently "heritage-worthy" (Di Méo, 2007) and undoubtedly capable of arousing what Nathalie Heinich (2009) calls "heritage-creating emotion".

Document 7 – A starry sky without light pollution seen from the balcony of the Paris Observatory in 19th century (Guillemin, 1877)

Author private collection.

- 22 Photographs of the Milky Way are rarely taken randomly. It is often photographed with a wide-angle lens or even a fish-eye (JFG, *Nuit à Troumouse 2*, 2014) to capture its "immensity" (CC, *Loucrup*, undated) as it "arcs" over the mountains (JFG, *Nuit à Troumouse 1*, 2014). Starscape photographers often seek to "place" it, or sometimes emphasise the fact that it is "perfectly placed" (NB, *Nuit Russellienne*, 2012). This means finding an ideal camera angle and/or waiting for the right season. In summer, for example, the Milky Way arches across the sky from north to south. Summer in the Pyrenees is therefore a good time to photograph the Milky Way "rising to the south" (JFG, *Gavarnie sous les Perséides*, 2013) "as if born in Aragon" (ibid.). Sometimes, the photographer has to wait for a particular time of year:

" September, to get the axis right for the Milky Way (RR, *Cascade du Pont d'Espagne*, 2016).

- 23 The idea here was to get the Milky Way and the famous waterfall on the same axis. This process is often used to make the night sky "touch" the mountains (Corajoud, 2010) and sometimes to play on the mirror effects of a mountain lake or stream:

"The heart of the "River in the Sky", very bright here because there are so many stars, rises from the Brèche de Tuquerouye and seems to flow in the same direction as the river down below, the Gave d'Estaubé..." (JFG, *Voie Lactée au Cirque d'Estaubé*, 2016).

"Capturing a reflection of the night sky, where every drop mirrors a star" (NB, *Marche sur le ciel à Estaing*, 2012).

Photo 5 – A nocturnal skyscape is "the place where earth and (starry) sky meet" (Courajoud, 2010)

Photograph reproduced with the kind permission of its author. Credits: Ronan Roger (2016).

- 24 When the Milky Way cannot be seen, the interest tends to be more on the density of stars than on the visibility of a particular constellation or planet.
- "We see the whole sky arching over the cirque (...) More than 2000 stars can be seen with the naked eye" (JFG, *Nuit à Troumouse 2*, 2014).
- 25 This clearly shows the difference between photographs of stars taken by astronomers and the starscapes photographed by landscape photographers. Some also try to capture rarer celestial objects in the Pyrenean skies, such as air glow (JFG, *Nuit à Troumouse 3*, 2014) and shooting stars (PM, *Les étoiles filantes de Gavarnie*, 2013 and JFG, *Gavarnie sous les Perséides*, 2013), which, when visible, indicate the "purity" (TP, *Cabane du Lisey*, 2015) of the sky, its "extraordinary transparency" (JFG, *Voie Lactée au Cirque d'Estaubé*, 2016).

Photo 6 – Nocturnal skyscape of Gavarnie with Milky Way and shooting stars

Photograph reproduced with the kind permission of its author. Credits: Jean-François Graffand (2013).

The "terrestrial" part of nocturnal skyscapes

- 26 As underlined by E. Bigando (2014) and O. Musard (2007), "the water column or water mass alone (the "blueness") do not make up an underwater landscape". The same is true of nocturnal skyscapes. The stars, celestial objects or phenomena in the sky are not a nocturnal skyscape in themselves. They are constituent parts of the night sky that structure perceptions and representations, but, from a landscape point of view, they are not "significant" (Bigando, 2014).
- 27 A careful examination of the composition of the photographs shows the initial structural effect of framing. Moving from a daytime to a night-time skyscape implies giving more space to the night sky. This generally reduces the terrestrial part to about a third of the image, even in mountain areas where the photographer will usually frame the image with an eye to the steepness of the mountain peaks. This is also a way of changing the relative dimensions of mountains:
"we see our mountain peaks bow to the greater dimensions of the Milky Way" (NB, *Les Hautes-Pyrénées sous la Voie Lactée*, 2012).
- 28 But the places, spaces and vistas photographed are significant nevertheless. They are indeed mountainscapes. Though not necessarily and solely associated with the Pic du Midi observatory, they reassert the identity of Pyrenean landscapes (iconic vistas and peaks, mountain huts), they show and reveal specific night-sky situations and atmospheres (Photos 2 and 4).

Using Pyrenean nocturnal skyscapes as a means to an end

- 29 Inherently linked as it is to the Pic du Midi ISDR project, this exhibition offers an interesting example of the use of landscapes to support an "area-based collective initiative" (Challéat, 2016). We will now discuss the use of landscapes as a means to an

end (Fortin, 2014) in the light of two examples (Debarbieux, 2007) that have emerged in the valleys of the Hautes-Pyrénées.

Nocturnal skylscapes as a "template" (Debarbieux, 2007) for projects to fight light pollution

- 30 The kind of landscape use discussed here was identified by S. Challéat (2016). It became a cornerstone of the design of the exhibition, which aims to show that the Hautes-Pyrénées as "a paradise for its natural environment and starry night skies, is in danger [...] of being lost to increasing light pollution" (PLVG, 2017). The approach works in the same way as with underwater landscapes, where showing what happens and what is hidden is a way of raising awareness about why we need to protect the marine environment (Agence Française pour la Biodiversité, 2018).
- 31 Viewed in this light, the photographs can be grouped into two distinct categories: those looking to the southern horizon and those looking to the plains to the north. Because of its geographical position, the Pic du Midi observatory is the point where the eye shifts towards one cardinal direction or the other.
- 32 Despite the halos of light from a few Spanish towns in the distance backlighting the mountain ridges on the border with a "faint orange glow" (JFG, *Nuit à Troumouse 3*, 2014), the views to the south seek to capture:
 - "sites with virtually no light pollution" (JFG, *Nuit à Troumouse 2*, 2014),
 - "pure sky" (TP, 2017, Interview),
 - "the bejewelled setting of the night sky" (NB, *Face au Nord*, 2012) at the heart of the ISDR.
- 33 The north-facing photographs, on the other hand (NB, *Face au Nord*, 2012), which look towards the cities of Tarbes, Pau or Toulouse that lie in "the plain that never sleeps [*la plaine qui ne dort jamais*]" (ibid.), show:
 - "the glow of light from the foothills" (HA, 2007),
 - "the ocean of light, [...] an ever more powerful tidal wave flooding across the Pyrenean foothills", "the exuberance of the light" (NB, *Le Pic qui veille face à la plaine qui ne dort jamais*, 2012).
- 34 Indirectly, these starscape photographers are engaging in participatory environmental monitoring of light pollution. Over and above their role as "sensors", as defined in M. Haklay's typology (2015), they are fully engaged through their photography in visually identifying and documenting light pollution and securing its recognition as an environmental issue.

Document 8 – The views to the south (bejewelled night sky) and to the north (ocean of light) from the balcony of the Pic du Midi Observatory are superimposed in this photomontage illustrating a document to promote the IDSR

Crédits: Agence Hôtel République, 2012.

The quality of nocturnal skylscapes and the "naturalness" of natural areas

- 35 From horizon to zenith, the density of stars in the night sky is a visual indicator of the absence of light pollution. Conversely, the increasing artificial background luminosity of the night sky proportionately lessens the contrast that allows us to distinguish diffuse celestial objects like the Milky Way, or much dimmer objects or phenomena like certain constellations, zodiacal light or air glow. But it is precisely the sight of these celestial objects that confers that purity and quality of the night sky that starscape photographers seek to capture. Therefore, in conditions of extreme darkness, as in mountain and especially high mountain areas, the diffuse artificial light from urbanised areas in the valleys and tourist resorts, for example, has the same impact on natural areas as other processes of human origin that adversely affect animals, plants and daytime landscapes.
- 36 These processes underlie another way of putting landscapes to use, which involves incorporating the dimensions of "starlit skies" and "nocturnal landscapes and environments" into different approaches for managing natural areas, whether protected or not. The issues addressed here have to do with heritage appropriation (Charlier, Bourgeois, 2013a), with the gradual integration of issues to do with the impacts of light pollution on the fragmentation of natural habitats and the disruption of ecological continuity (Sordello, 2017) and with new ways of experiencing landscapes, as in the dark-sky reserves of Canada and the USA where dark-sky experiences are associated with broader "wilderness" experiences (Duriscoe, 2001; Nordgren, 2010). In the US, these analyses, by D. Duriscoe (2001) in particular, are central to the "pristine night-skies" and "natural lightscapes" nature protection activities run by the National Park Service's Night Sky Team. The approach in the Pyrenees, although still in its early

stages, has brought the National Park - with 55% of its protected area in the core zone of the Pic du Midi ISDR (map 1) - to extend its work on "green" and "blue" belts by identifying and characterising a "dark belt" network. The slogan chosen for the programme is fairly explicit and effectively combines one of the fundamental aims of the ISDR project (to fight light pollution) with a biodiversity conservation issue: "Restoring belts of darkness to bring back the stars" (*Rallumons les étoiles en restaurant la trame sombre*) (PNP, 2016). Two of the three photographs illustrating the programme's home page on the Pyrenees National Park's website were chosen from this exhibition: a view of the ridges around the Cirque de Gavarnie (Photo 3) and the well-known photograph of the Vignemale peak below the Milky Way (Photo 1b).

Conclusion

- 37 The introduction of "nightsapes" into the Environment Code, following the adoption in August 2016 of the law on restoring biodiversity, nature and landscapes, is in line with recently evolving conceptions of night and the nocturnal environment (Challéat, 2016 ; Charlier, Bourgeois, 2013a ; Sordello, 2017). It is also, most certainly, an important stage in the changes described, with considerable foresight, by L. Gwiazdinski (2005).
- 38 Nevertheless, this new conception should not be seen as performative. Its meaning needs to be explored, both conceptually and with operational aspects in mind, in order to understand and give direction to the conservation issues that arise from it. In this article, we have discussed a possible category extension to encompass "nocturnal skylscapes". We believe that this is justified by the increasing number, in France and elsewhere, of projects that combine local and regional development with the preservation and promotion of starlit skies (creation of dark-sky parks and reserves, labelling schemes for starlit cities and villages, etc.). Although this study only covers the Pyrenees, we believe that our analyses can usefully contribute to more broad-ranging discussions. Although a "nightscape" is not necessarily a "skyscape", and an urban nightscape is not necessarily that of a darkened city (Cohen et alii., 2012), a subtle combination of artificial and natural light could - indeed would - bring their terrestrial and starlit components into harmony with the emerging representations whose archetypal elements we have attempted to understand.
- 39 But in the mountains, the issues are quite different. Urbanisation is proceeding upwards along an altitude gradient: in the Hautes-Pyrénées, this is bringing sparsely populated areas into contact with tourist zones and other areas with few built amenities, if any. Some of these are protected in the classic, diurnal sense (national parks, national and regional nature reserves), and much more recently in the nocturnal sense (the Pic du Midi International Dark Sky Reserve received its official seal of approval in 2013). A new pattern of spatial proximity therefore has to be managed between areas with artificial lighting and those where natural light predominates. An approach based on nocturnal skylscapes and their *in visu* artialisation could be a good means to this end.

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List of photographers who have contributed to the exhibition with the initials used in the text and the links to their online portfolio dedicated to starry sky pictures:

- Henri Aurignac (HA)
- Nicolas Bourgeois (NB)
- Christophe Cieslar (CC) : Facebook « Christophe Cieslar Photographie »
- Paul Compère (PC) : http://www.nature-360.com/gallery/?language=french#/picdumidi/galerie_1/
- Jean-François Graffand (JFG) : <https://www.flickr.com/photos/100341353@N08/>
- Pierre Meyer (PM) : <https://pierremeyerphotos.com/montagne/>
- Tristan Pereira (TP) : <https://www.tristanpereira.com/photos-refuges.html>
- Ronan Roger (RR) : Facebook « Calunaphoto Infimes Lumières »
- Matthieu Roubinet (MR) : <http://www.pyreneesenlumieres.com/galerie/Le-Monde-de-la-Nuit/>

NOTES

1. The quotations from the photographer's descriptive texts in the text that follows are referred to by the photographer's initials, the title of the photograph and the year when it was taken, e.g. PM, *Travailleurs de Nuit*, 2015. When the quotations are extracts from interviews, the reference is : Interview.
 2. The World At Night (TWAN): <http://twanight.org/newTWAN/index.asp>
 3. The reference here is to the celebrated oxymoron in Corneille's *Le Cid*.
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ABSTRACTS

"Nocturnal skyscapes. You know the Pyrenees by day - come see them by night... ": thus the title of an exhibition of photographs set up in 2012 by the Pays de Lourdes et des Vallées des Gaves (Hautes-Pyrénées *département*) to help raise public awareness about the project for the Pic du Midi International Dark Sky Reserve (IDSR), mainly among the local population and stakeholders in the areas concerned.

Although its evocative title might suggest otherwise, this is rather more than an exhibition on the iconic sites of the Pyrenees seen at night. What it seems to do is to bring out new landscapes that are not just "mountainscapes at night", or simply night-time versions of landscapes seen by day.

The night skies that characterise these landscapes therefore represent a new category, they need to be considered in their entirety as conveying a meaning that encompasses all that is both construed and material in our relationships with landscape. As in many areas with similar projects either in place (North America, Europe) or emerging (the Cévennes and Mercantour national parks in France, for example), the creation of the Pic du Midi IDSR will have helped to bring a new kind of "landscape object" (Besse, 2009) into being in the Pyrenean region.

INDEX

Keywords: nocturnal landscapes, nightscape, Pyrénées mountains, artialisation

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