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MEASURING LOSS OF ACCESS TO THE LAND AND ITS IMPACT ON PLACE ATTACHMENT: THE CASE OF THE HISTORICAL MINING COMMUNITY OF PUCHOCO, CHILE

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I. INTRODUCTION

Landscape change can be seen as an inevitable phenomenon and as such, a process that must simply be embraced. Alternately, change can have important negative effects on the quality of life of residents. As a response to this concern, landscape management involves guiding landscape dynamics resulting from economic, social or environmental needs; the main aim is to improve the quality of life of communities (Council of Europe, 2000; Gunderson, 1999; Rescia et al., 2010 in Aretano et al., 2013, p. 64). Within this field, this research explores how unguided transformations of a historical landscape in the context of post-industrial decline can affect place meaning and have an impact on place attachment. Specifically, this paper focuses in how loss of access to urban green and open spaces can affect the emotional connotations of place.

In Chile and in particular in the Biobío Region there is a rich cultural heritage deriving from industrial development that took place between the second half of the nineteenth and the first half of the twentieth century⁴. After the military coup in 1973, the region began a process of industrialization as a result of the neoliberal model promoted by the dictatorship (Brito, 2018), followed by a long process of decline of the industrial facilities. In reaction, fundamentally since the nineties after the return to democracy, there have been various heritagization initiatives, many of them promoted by the former workers with the support of local and in some cases national authorities. While these initiatives indeed constitute a step forward in the protection of industrial heritage, they have also revealed important weaknesses in Chile's preservation system, including the one explored in this article: the lack of a holistic vision of heritage, that is, one that integrates the built areas and the natural site, among other aspects.

This phenomenon was studied in the former coal mining

community of Puchoco in the Biobío Region of Chile, a community with strong social cohesion and local identity. The aim was to verify how the above-mentioned weakness in preservation practice could be impacting the lives of the communities, communities that have been exposed to important forces of urban change after the main industry closed. The three key research questions were: a) Can urban green and open spaces within cities be a significant aspect of place attachment? b) How can loss of access to urban green spaces affect the emotional connections between people and places? and c) How can this case of unplanned landscape change guide preservation planners in Chile, in order to avoid undermining place attachment in former industrial communities?

Sections two to four of the paper present the research background including the theoretical framework, the case study of Puchoco in the context of coal mining development in Chile, and the study's methodology. Section five describes the primary findings on the past and present meanings of urban green and open spaces and in section six the main research questions are addressed and a general conclusion is given.

II. THEORETICAL FRAMEWORK

Two main lines of research converge in the present article. The first includes studies analyzing the physical transformation of landscape, including those that have focused on how this transformation can affect people's access to nature and urban green space. The second involves the issue of meaning and the emotional connections people have with places. Within this field, the most relevant to this research are those addressing aspects of the connotative meaning of urban green space. Regarding the former, researchers have studied landscape change from both prospective and descriptive approaches. Using a prospective point of view, Kaligarić and Ivanjnskić (2014) have measured and predicted the transformation of the landscape in rural areas. From a descriptive perspective, Aretano et al. (2013) have analyzed the impact of this change on ecosystem services. Also from a descriptive approach, L'Observatoire Nationale du Paysage de France (OPP) has measured the visual transformations of the landscape through re-photography (Seguin and Soufflet-Leclerc, 2008). Regarding access to open space, Rigolon (2016) and Dony (2015) have studied inequalities in access to urban parks in terms of different variables, such as proximity, acreage, quality, and number of amenities. Shanahan et al. (2014) have studied how access to nature varies across the socio-economic gradient. In most of these studies, the main approach employed is the spatial distribution of urban green space and its implications in terms of social justice. Finally, another perspective that

⁴ These include the Humberstone & Santa Laura and Sewell World Heritage Sites in northern and central Chile respectively, which have been listed since 2005 and 2006, and in the Biobío Region the national monuments located in the coal mining city of Lota and the textile industry in Tomé, among others.

combines the issue of landscape change with access to nature is the work of Hojring (2002). In his study he compared legal ordinances aimed at preserving access to the countryside with actual access reduction as a result of decreased road density. Similarly, Gingembre's study (2015) analyzed loss of access to the land due to the actions of transnational corporations. It sheds light on the opportunities and difficulties that local communities encounter upon resisting transnational forces.

Concerning the latter line of research, place attachment is a concept derived from studies in environmental psychology dating back to the late 1970s (Brown, 1987; Proshansky, 1978; Stokols & Schumaker, 1981; and Williams et al., 1992, among others). Place attachment has been defined as the "individuals' emotional bindings to geographic areas" (Ram et al., 2016, p.111) and as "the personal connection that one feels with a particular place" (Suntikul, 2016, p.278). Place attachment involves two major conceptualizations: place dependence and place identity. The first concept refers to the suitability of a certain place to meet one's functional needs and aims. Alternately, place identity refers to a much more emotional type of connection (op cit). Regarding residents' perceptions of urban green space, an important precedent to this study is Burgess et al.'s paper on a London neighborhood (1988). Their research presents strong evidence on people's profound feelings for their natural environment and the significant role that urban green space plays in urban residents' daily life. The results indicate that urban green areas contribute to a positive experience of place in two major ways: firstly, as a result of "the pleasure of contact with nature and the natural world," and secondly, as a consequence of the "cultural meanings that are embodied in open-spaces." Cultural meanings in turn explain the role that open spaces play in enhancing a sense of community (op cit, p.456). While not a central aspect of their research, another finding was that the replacement of open land with development of various kinds triggers "persistent and deeply-felt concern" among residents, as well as feelings of nostalgia and a sense of loss and powerlessness (op cit, p.464). While the connections between place identity and the preservation of cultural heritage are widely acknowledged (Stephens and Tiwari, 2015; McLean, 2006; and Tweed and Sutherland, 2007 in Bamert et al., 2016, p.122), the relationship between place attachment and landscape change has not been widely discussed. One of the few studies to address this relationship is that by Lokocz et al. (2011), which examined the links between place attachment and residents' resistance to change in rural English areas. Similarly, Zabik and Prytherch (2012) analyzed town stakeholders' opinions on the preservation of the town's rural character, ongoing patterns of change, and the challenge of planning for rural character.

The conceptual basis of the present research builds on the notion that human interactions with nature and green spaces within cities promote important positive emotional responses among residents. Additionally, given these positive implications, a reduction in opportunities for interaction may have a negative effect on people's wellbeing (Roberts et al., 2019, p.820) and therefore a negative effect on place attachment.

III. CASE STUDY

The historic coal mining community of Puchoco

Coal mining in Chile developed primarily in three areas: the Biobío Region, the area of Valdivia and the Magallanes Region at the southernmost tip of the country. Of the three, the Coal Gulf in the Biobío Region was by far the most important in terms of its economic, spatial and cultural significance (Astorquiza, 1942). Within the Coal Gulf, the main mining cities were Lota and Coronel, both located at the southern end of the Concepción Metropolitan Area. In Coronel, the most important mining sites were located in Schwager, which included the mining towns of Puchoco and Maule (Figure 1).

Figure 1. Location map. Source: the author. Drawing: A.Bustos

While in Coronel, mining first began in the year 1849, in Schwager, it started just a few years later in 1857. In 1859, Guillermo G. Delano and Federico Schwager created the Puchoco Mining Company. Delano became the company's business manager and Schwager, manager of the coal mines and a shipping fleet (Mazzei, 1997). In 1892, Schwager bought Delano's share and founded the Schwager Coal and Foundry Company. Schwager's company focused on mining exploitation through underground galleries built under the sea.

Figure 2. A view of the worker's pavilions in Puchoco (demolished during the eighties), photograph captured in 1945; source National Library. Source: the author, July 2014.

Figure 3. The semi-detached houses for higher rank employees in Maule. Source: the author, July 2014.

The mining town in Schwager is comprised of two separate, distinct areas along the coast: Punta Puchoco, located at the north end of the Gulf of Arauco, and Maule, located 2.3 km further north, at the mouth of Maule Creek. Whereas in Maule the coal company built houses for the bosses and main employees, the rows of terraced houses built in Puchoco were for the coal workers (Figures 2 and 3). Like many company towns, Schwager was a gated settlement and the whole site, including the open spaces and buildings, belonged to the coal company. After nearly a century, in 1958 the company began a period of economic decay and the land use pattern in the area started to shift from productive uses to housing. In 1964, in order to counteract increased operational costs and decreased demand, the Schwager Coal and Foundry Company merged with the mining company in Lota. The newly created business became the Lota-Schwager Company SC. In 1970, the company was nationalized and a government agency (CORFO) took over management. Later, all the coal mines in the region became part of the publicly owned National Coal Company (ENACAR). In 1985, ENACAR 'sold' the houses to the former workers at very low prices, and in 1988 completed the sale of the Puchoco mining

facilities to the private company Carbonífera Schwager. However, when twenty-one workers died in a gas explosion in 1994, the new company managers decided to cease all operations immediately. In contrast, most of the community and mining facilities fell into disuse and decay.

Since the beginning of the twenty-first century, both local and regional agents have led initiatives to protect mining heritage. As part of these initiatives, in the year 2010 both Maule and Puchoco were designated as national monuments (Decree N° 220_2010, 31/05/2010). Nevertheless, much of the built legacy had either already been demolished or has continued to fade away due to redundancy.

Parallel to the attempts to preserve the mining heritage, various macroeconomic shifts and the closure of the mining companies have resulted in extensive land transfer to transnational industries. According to the employee in charge of dismantling ENACAR, this is how in the early nineties Carbonífera Schwager sold its land to the Cabo Froward Shipping Company. Thus, the new managers occupied Puchoco's surrounding areas with piers and stacking zones. Later, in 2008, ENDESA Chile⁵ built the second thermoelectric power station in Coronel (Bocamina II), which occupied the northern side of the road connecting Puchoco with the center of Coronel. Finally, in subsequent years several seafood processing industries have occupied the coast between Puchoco and Coronel.

IV. METHODOLOGY

During 2014 and 2015, two field studies were conducted in Puchoco. One aimed to reveal positive and negative connotations of the mining landscape, and to identify aspects that the community wished to preserve. The other sought to explore the connections between the people and their place from a more general perspective. While the issue of access loss was not a research objective in either of the studies, its importance clearly emerged through the analysis. Accordingly, it was decided to further review the qualitative data to verify emotional connections to urban green space and explore the effect of access loss caused by unplanned landscape change on feelings of loss and nostalgia within the local community.

Focus groups, life narratives and blank mapping research

Two mixed-gender and two gender-specific focus groups were conducted, as well as in-depth interviews. The mixed-gender group included five participants, four women and one man, all adults ranging from 50 to 78 years old. Most had lived in Schwager for more than 20 years. All had an interest in heritage, and some had been trained as heritage guides and took part in the Facebook group 'Heritage Guides of Puchoco'. The two gender-

specific groups were made up of five men and four women respectively.

Open-ended questions were asked in order to facilitate free discussion among participants and blank maps were used as a basis for participatory map production. As in Bracerías (2012), mapping was used as an intersubjective activity in citizenship aimed at stimulating a social encounter and the reconstruction of collective memory. It was expected that the mapping would enable the visualization of key collective issues and the underpinning of power relations and resistance, as well as the participants' links to the place (Risler & Ares, 2013). Additionally, in one of the mixed-gender groups historical photographs were employed to trigger memories associated with missing elements such as spaces and significant buildings. Finally, four men and two women were selected for deeper discussion through life narratives. These were intended to explore individual experience so as to regain the subjectivity of the individuals who build the narratives of themselves (Cornejo et al., 2008). Video or audio recordings were made of all sessions. Data analysis involved full transcriptions of the group discussions and systematization using Atlas.ti software. Work with human participants was approved by the institutional ethics committees and complies with both institutional and national regulations.

Cartographic analysis

Through the cartographic analysis, the spatial dimensions of land use change were studied. Firstly, the research aimed to compare the spatial relationship between the mining town, roads, and main natural elements, i.e. before and after the mining company closed. To this end, maps were developed of historical and current land uses by applying photointerpretation techniques. For the historical map, aerial photographs from the '60s were used to trace the perimeters of the built areas of Maule and Puchoco, the hill, the coastline and the main roads. The map of the present situation was drawn using Google Earth's satellite view.

Secondly, the study aimed to analyze the mining company's premises before and after the subdivision and sale of the land. The latter occurred as part of the coal crisis that started in the '60s and ended in the '90s with the company's closure. In this way, land use shifts were related to changes in land ownership. Historical company maps from the '70s were used to draw the perimeter of ENACAR's premises and the pieces of land that were either sold or expropriated. Using AutoCad, the area of all of these patches was calculated to measure the land accessible to the community before and after the company shut down. As memories of the place within the residents' life spans were of interest, the analysis focused on the '60s and '70s, when participants were either children or young adults. Additionally, a former ENACAR employee in charge of dismantling the company's assets was interviewed.

⁵ Empresa Nacional de Electricidad Sociedad Anónima (National Electric Company, Ltd)

V. RESULTS

Firstly, the territorial dimension of the unguided process of land use change in Puchoco since the mine closing is presented. The main natural features surrounding the housing complex are identified, as well as how these changes affected the residents' ability to access and enjoy the use of these areas. Secondly, resident's perceptions regarding changes in access and daily experience with the main open spaces and natural features are presented. The findings show the contrasting perceptions of the inhabitants concerning the 'remembered' and the present landscape and its impact on their feelings about the place.

Mapping loss of access to urban green and open spaces

The main natural features of the Puchoco site are the sea, along the western and southern coastline, and the hills to the east. The analysis showed that both top-down and globalizing forces had had a significant impact on community access to these natural features, and more generally on open space within or near the settlement. The maps made it possible to measure the extent of the land sold after the mining company closed. Historical maps were found dating from 1976 to 1984. According to the earlier maps, the premises of the Schwager site covered an area of approximately 401 hectares (Figure 4). Even if this land was not owned by the coal workers, in their memories they recalled having free access to the entire premises, including all the natural features and open spaces. Based on these same maps, during the years 1976 and 1977 ENACAR began a process of selling off the land for new industrial uses, land that was later occupied by the Cabo Froward Company (115 ha). Also, the Chilean government exercised its eminent domain rights to expropriate land for social housing (35 ha). This process resulted in the loss of access to nearly 30% of the land.

Figure 4. A view of the road connecting Puchoco and Maule. The view to the sea is blocked by the wooden stacks of Cabo Froward Shipping Company. Source: the author, July 2014.

The 1961 map, Access to Natural Elements, demonstrates the close connection between the built areas (in black), the open spaces and the natural features within the site (Figure 5). These natural features include: a) the beach, which is adjacent to the mining towns of Puchoco and Maule and stretches along the west side of the road that connects both towns (in yellow); b) the wooded hills located to the east of the same road (in dark green); and c) the wetlands situated northward, along Maule Creek (in light green). The analysis of the 1961 map shows that approximately 2,556m of coastline was accessible on a daily basis to the community (beaches 2, 4 and 3). In contrast, the 2015 map reveals a dramatic reduction to only

1,400m of accessible coastline (at Villa Hermosa beach). Hence, approximately 1,156m of coastline are now inaccessible as a result of the industrial uses of the land located along the road. This means an approximate reduction of 40% in the accessible coastline.

Figure 5. View of Talca Beach. This beach used to be an important recreational area during the mining period. At present it is used as a shipping area by the Cabo Froward Co. Source: the author, July 2014

The second major shift in the landscape is that of accessible wooded areas. The 1961 map shows an area of approximately 161 ha of woodland, whereas the 2015 map reveals a reduction of the wooded areas to approximately 130 ha. This means a reduction of nearly 20% of the historical woodland area. Additionally, the new industrial uses prevent access to the hills located along the road connecting Puchoco and Maule.

The impact of access loss on meanings of nature and open space

During the time the mine was operational, two factors contributed to facilitate worker's access to public spaces and nature. Firstly, the company's systematic promotion of worker participation in collective activities, and secondly, the fact that the mining company owned wide tracts of land that extended several kilometers beyond the town and the mining facilities. The former was a policy common among Chilean industries during the first half of the twentieth century, which derived from the paternalistic model of industrialization. In this urban model, the company not only provided worker housing but in fact a whole microcosm in which nearly all social facilities were ensured. Regarding the latter, mining premises usually incorporated open areas as a source of resources that were needed for the extractive activities or the mining towns (such as wood and water). This mode of production was standard practice among coal mining companies in the Biobío Region. The interviews and focus groups confirmed that thanks to the paternalistic model, even though the miners did not own the land, they felt that they could use it freely. They had daily access to open spaces within and surrounding their mining towns, and during the weekends and holidays, to other more distant natural areas. Also, the findings revealed the following impacts of access loss on the meaning of open spaces.

Loss of access to the hills

The participants stressed the importance of the Palomares hills in their daily life as young boys and girls. One of the residents described it as "something green, beautiful, free, with no owner, now we don't have it"⁶. Now it is "too modified" by the timber companies.

⁶ Phrases have been translated to English from the original Spanish.

Loss of access to the seashore towards Maule

Concerning the sea, the discussion identified two primary meanings: firstly, as a source of fish and seafood, and secondly as a place of recreation. Concerning the former, participants remembered that there used to be a fishing area. Fishermen would go out to sea with their boats and come back with a great deal of fish; also, there were divers. One of the residents declared that he used to dive as a child.

With respect to the significance of the seashore as a place for recreation, participants recalled how ‘in the old days’ this area used to be a beach: “We walked looking at the landscape, now if you want to walk, the only thing you see are trunks”. They were referring to the stacks of timber at the Cabo Forward company (Figure 6). Another resident complained that, “It’s like seeing [shipping] containers all along a port, which hide the whole view”.

Figure 6. A view of Maule Creek. Source: the author, July 2014

Figure 7. The water pump area. We can see the remains of what used to be the house of the family in charge of the pump. Source: the author, July 2014

Another important recreational coastal area was Talca Beach, located towards the east end of Puchoco. At present this site is yet another area occupied by the Cabo Forward Company (Figure 7). The participants did not know what the new land uses are. They recalled talking to a Cabo Forward employee who told them that starting from a certain distance from the seashore “they (the company) can close whatever they want because they own the land”. And “nobody complained,” the residents added.

Access to the Maule Estuary

Yet another recreational spot was the mouth of the Maule Estuary, a place for family gatherings. People would bring their picnics and the local firemen would play the music for “the party”. It was the place for a daily stroll for the young and a Sunday outing for the mining families (Figure 8). Further up the estuary was the company’s water pump, just behind the Schwager soccer stadium, which also belonged to the mining industry. This location was a prime destination for school trips, as the estuary was not too deep (Figure 9). The Maule Estuary is one of the few natural areas to which the community still has access.

Figure 8. A view of Quiñenco lagoon Source: the author, July 2014

Figure 9. A signage of the water company ESSBIO, forbidding access to the lagoon. Source: the author, July 2014

Access to Quiñenco Lake

Another popular place was Quiñenco Lake –also property of the mining company- located farther away in an area known as Lagunillas. It was also a place for family gatherings. At present, it belongs to the privately-owned water company ESSBIO (Figures 8 and 9).

Figura 10. A view of the church from the main square. Source: E.M., Former miner in Schwager

Figura 11. A view of the main square as seen from Palomares hills. The church and the remains of the gymnasium can be seen at the front and the sea at the background. Source: E.M., Former miner in Schwager

Loss of significant access to the main square

In the mining town, the square was also an important urban open space. The main facilities were built around its edges: the marketplace, the gymnasium, and the church. The theater was located nearby.

Figure 12. Land selling process late seventies. Source: the authors, based on map of 1977, ENACAR archives. Drawing A.Bustos

Figure 13. Loss of access to natural elements. Source: the authors, based on aerial photograph from 1960 and satellite view (Google Earth, 2015); Military Institute of Geography. Drawing: A.Bustos.

The main square was the place for the most significant festivities, including the Spring Festival. The festivities would start with a stroll through the mining facilities to the main square; the last activity was the dance in the gymnasium (Figures 12 and 13). Although the main square still exists, nearly all of the previously-named facilities have ceased to exist due to the demolition of important parts of the historical fabric during the 1980s. Other facilities that do still remain fell into disuse long ago after the closure of the mining company. All the activities that they used to organize also halted.

Access to the stadium

Another significant open space was the company’s stadium. The families would go to see their local team Lota-Schwager’s soccer games. At that time the company allowed music bands during the games; now they are forbidden. “That’s where the families would go, it was not like it is now. (...) even the old people would take baskets (with food) to eat there ... there were many siblings (in my family) and my mother (would go) with a big basket.”⁶

The impact of landscape change on connotative meanings and the social value of place

The focus groups and life narratives revealed that during the mining period the community developed a number of connotative meanings and memories that strengthened their bonds with the open spaces. These meanings can be divided into the following groups (second column in Table 1):

1. Meanings related to the enjoyment of nature itself; this group includes associations such as: enjoying the view of the sea and ‘the greenery’ of the hills.
2. Meanings that refer to the sea and the wooded areas as providers of food.

3. Memories that link open spaces with collective recreation and social encounters.

Of note in this last group in particular is the importance of enjoyment of open space in the construction of social, family and community ties.

If we consider that place attachment is deeply related to positive meaning of place -both connotative and denotative- (Burgess et al., 1988) the results demonstrate the importance of daily access to open space in the construction of bonds to physical space. Additionally, Table 1 shows two shifts related to loss of access to the most valued open spaces of the mining period:

1. Open spaces where communal access has been completely lost: the Palomares hills, the seashore towards Maule, Talca Beach, and the water pump. Most of these now belong to the Cabo Froward shipping company.
2. Open spaces that are still accessible but where the quality of the experience has been diminished: the main square, the stadium, and the open areas near the mouth of the Maule Estuary.

If past and present access are compared with regard to these key open spaces, it can also be deduced that since the mine was closed, sale of the land has greatly reduced the community's previous opportunities for meaningful access to open spaces. According to the focus groups, the community perceives they have in a way been shut out of what used to be their land and they resent these changes.

Regarding the factors underlying the loss of meaningful use of open spaces, the analysis reveals the following groups of issues (Table 1, third column):

Table N°1. Changes in access and meaning of open spaces.
Source: the authors

1. The first group is related to the building of fences that physically inhibit communal access to some open spaces.
2. The second group has to do with the installation of new industries in these open spaces, which have affected the aesthetic and environmental qualities of the natural landscape, such as: the view of the sea, the greenery, and the seafood supply.
3. Finally, the third group relates to the end of a series of organized collective activities that used to take place in the open spaces and which ended as result of the mining company's closure. This last factor highlights the importance of the paternalistic model as a promoter of the collective use of open space.

As can be seen, all three factors are a consequence of closing the mining company, followed by changes in land ownership, and the installation of new industrial land uses.

VI. CONCLUSIONS

After a main industry closes down, former industrial communities usually undergo important land use transformation processes. In Puchoco, the cartographic analysis indicated that land uses surrounding the built areas had changed greatly. These changes resulted in a dramatic reduction of residents' access to urban green or significant open spaces. This study identified two factors of landscape change: the closure of the historical mining company and the subsequent process of selling land to private owners and transnational industries. While the first factor meant the end of a paternalistic model that had promoted collective use of open spaces, the second resulted in the definitive loss of physical access to various meaningful sites. Additionally, the new industries did not employ workers from the community, thereby limiting continued access to the premises. Also due to the end of the paternalistic model, other open spaces where the community had retained physical access lost their significance. This is the case with Puchoco's main square and Schwager's stadium. Concerning nature and urban green space, the theoretical framework stated that urban residents' interactions with it within cities play a significant role in daily life experience and promote important positive emotional responses. Likewise, this research shows strong evidence of the key importance of nature and urban green in peoples' memories. Also, in accordance with Burgess et al.'s (1988) findings, two major themes of significance emerged: firstly, the pleasure that people felt when in contact with nature and the natural world, such as feelings of freedom and a spiritual enjoyment of nature; and secondly, the cultural meanings that are embodied in open spaces as a result of daily activities involving social encounters with friends, family, loved ones and with the community as a whole. This strong linkage between positive memories of childhood or youth and the urban green clearly underpin their importance in building emotional connections to place, that is place attachment, as well as a strong sense of community. Furthermore, in Puchoco a third major theme was identified and labelled as the 'pragmatic' connotations of open spaces, or the meaning associated with natural sites as sources of food. This last theme was highly valued as a resource that increased miners' autonomy and resilience during long-lasting strikes.

Finally, also in line with the theoretical framework, the replacement of open land with development of various kinds triggers a "persistent and deeply-felt concern" among residents, as well as feelings of nostalgia, a sense of loss and powerlessness (Burgess et al., 1988, p.464). Similarly, this research presents strong evidence of the detrimental impact of landscape change after the mine closed. Most of the important open spaces and urban green that residents valued and enjoyed for a number of reasons are now inaccessible to them. The positive memories associated with these places contrast with residents' affirmations about the current situation (Table 1), including: "the fauna have died", or "the view is lost", or simply "(we) don't go anymore". All of these remarks share a common deep sense of loss. Moreover,

statements that compare the past and present situation of their environment such as “everything was prettier”, “everything was cleaner”, “we are shrinking” and others, dramatically reflect their permanent nostalgia for the past qualities of their environment. Lastly, various declarations such as “now we don’t have it” or ‘it’s forbidden’, among others, suggest the sense of powerlessness mentioned in Burgess et al. ’s study. The inhabitants resent the vanishing of a series of open spaces that were linked to social and family events and to which they were emotionally connected.

As a general conclusion, the research demonstrates that various socioeconomic factors can trigger important landscape transformations in historical areas. These changes can include the incorporation of new landowners, new land uses and new management practices. All of the above can affect, not only the housing conditions of the community, but also their ability to access their natural surroundings. These unguided processes can greatly impact traditional ways of social encounter and recreation, and accordingly diminish positive meanings associated with place. The results can be used to inform preservation planners that traditional preservation practices that focus exclusively on the built environment can in fact be neglecting the recuperation of important connections to the natural surroundings, which can in turn cause serious detrimental effects in traditional ways of life within historical neighborhoods. While there is consensus among researchers regarding the importance of these emotional connections between people and places, the case of Puchoco indicates that - in Chile - its importance has yet to be included in a more holistic process of preservation planning.

Open space	Memories/positive connotations	Current access / property owner	Present perceptions/factors
1. Access has been completely lost			
Palomares Hills	Nature enjoyment: “Green, beautiful, free” Recreation: a place to play as young children, family strolls, meeting with first boyfriends and girlfriends	Access loss / Cabo Froward Shipping Co	“Now we don’t have it” “ Too modified by timber companies”
The seashore towards Maule	Food provision: fish and seafood Recreation and nature enjoyment: walk enjoying the view	Access loss / Cabo Froward Shipping Co	Sea fauna has died because of the thermoelectric plant The view is lost because of the shipping and stacking company
Talca Beach	Recreation and nature enjoyment: sunbathing, especially for older people	Access loss / Cabo Froward Shipping Co	Occupied by piers of the shipping and stacking company
The pump	Recreation and nature enjoyment: a main destination for school trips to bathe in the river	Access loss / Private owner	They don’t go anymore
Quiñeco lagoon	Recreation and nature enjoyment: a destination for family picnics	Access loss / Private owner (ESSBIO)	They don’t go anymore
2. Retains Accessibility – diminished collective experience of the open space			
The stadium	Recreation: Football games of the local team Lota Schwager; accompanied by the local music bands	Controlled access /	Now the music bands are forbidden
Main square	Recreation: The center of cultural and social life; the place for the most significant festivities; e.g. the Spring Festival	Public access / Public space	There are no more social activities
The mouth of the river Maule	Recreation and nature enjoyment: a destination for family picnics and daily strolls for youngsters	Public access / Public space	Still have access. There are no more bands
Retains access			
Villa Hermosa Beach	Recreation and nature enjoyment: sunbathing		

Table N°1. Changes in access and meaning of open spaces. Source: the authors