Holding the borders of Mount Carmel

A study of management and land issues in a UNESCO Biosphere Reserve

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June 2014
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Urban and Regional Planning, advanced level, master thesis for master exam in Urban and Regional Planning, 30 ECTS credits.
Supervisor: Lowe Börjesson
Language: English

Abstract
The establishment of a UNESCO Biosphere indicates a shift from traditional conservation of individual areas towards a more regional approach and an inclusive planning and management regime. This study sets out to investigate the effects of the Biosphere Reserve designation in Mount Carmel, Israel, with special regard to settlement development and stakeholder management. The implications of the Biosphere Reserve designation have been explored through GIS analysis, using LANDSAT satellite data, and through interviews, observations and participatory checking. The empirical findings were analysed in relation to the Biosphere Reserve Statutory Framework, and to theories on territorialisation, space production and participatory planning. The findings suggest that the Biosphere Reserve designation have had very limited effects in the case of Mount Carmel. Settlements have continued to expand into protected areas, and there is no organised structure for stakeholder participation. This study underlines the value of considering context and history in the establishment of protected areas, and the importance of establishing the Biosphere Reserve concept among the different stakeholders.

Key words: UNESCO Biosphere Reserve, settlement development, stakeholder management, environmental planning policy, political ecology, Mount Carmel, Israel.
Acknowledgements

First of all this thesis was made possible through the support of the GLEAN project, for which I am very grateful. Thanks to the Swedish Research Council, which financed my field study in Israel. Special thanks to Lisen Schultz for her guide and support.

I want to thank all those who participated in interviews and shared their views and insight in the dynamics of the Mount Carmel. I truly appreciate the enthusiasm and openness among many of the interviewees who were glad to show me around, and to provide contact with other people relevant for my study. I especially want to thank Simon Nemtzov at the Israel Nature and Parks Authority for his invaluable help and support.

I am also grateful towards the researchers at Haifa University and to Daniel Orenstein and his co-researchers at Technion Israel Institute of Technology for providing me with additional context to this research field in Israel.

I also want to thank Michael Meinild Nielsen, Pontus Hennerdal and Anders Wästfelt for their encouragement, and for help and guidance in technical matters, both in GIS and other software.

Last but not least, I want to thank my supervisor Lowe Börjesson for inspiration and support during the somewhat bumpy road of this thesis.
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List of Acronyms

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<tr>
<td>BR</td>
<td>UNESCO Biosphere Reserve</td>
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<td>CBR</td>
<td>Mount Carmel Biosphere Reserve</td>
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<tr>
<td>ICDP</td>
<td>Integrated Conservation and Development Project</td>
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<td>INPA</td>
<td>Israel Nature and Parks Authority</td>
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<td>JNF</td>
<td>Jewish National Fund</td>
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<td>MAB</td>
<td>Man and the Biosphere Programme</td>
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<td>NP</td>
<td>National Park</td>
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<td>NR</td>
<td>Nature Reserve</td>
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<td>WNBR</td>
<td>World Network of Biosphere Reserves</td>
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1. Introduction
Ever since the concept sustainable development was introduced in the Brundtland report “Our Common Future” in 1988 it has received an increased attention and influence, especially within environmental planning and management (Selman, 2000:8ff). These ideas were introduced towards a background where the conflict between parks and people had gained increased attention (Neumann, 1997). With the introduction of this concept environment and equity was put in relation to one another; nature must not be preserved at the expense of a local population’s quality of life (Weeks, 2008:472). In terms of environmental planning and the management of protected areas, this implies a need to widen the scope substantially, both geographically and across disciplines. According to some scholars the concept of sustainable development is deliberately vague. It leaves room for interpretation, making it applicable worldwide. This openness can however both make it incomprehensible and subjective. (Weeks, 2008; Selman, 2000; Redclift, 2003) Is sustainable development an opportunity or an oxymoron?

One way to deal with the complexity of the concept sustainable development may be through the inclusion of different actors in decision-making and management. This is often referred to as participatory planning or stakeholder management. This type of negotiating planning has received an increased attention both within the field of urban and regional planning (Sandercock, 2003; Huxley & Yiftachel, 2000), political ecology and environmental management (Schultz et al, 2011; Hage et al, 2010; Reed, 2008). In 1996 UNESCO’s Man and the Biosphere Programme incorporated the sustainable development concept in the Seville Strategy. This led to a shift in the definition of designated UNESCO Biosphere Reserves (BR), from individual conservation areas towards regional conservation, and with an overarching aim of sustainable development. (Coetzer et al, 2014: 85)

“Biosphere reserves should strive to be sites of excellence to explore and demonstrate approaches to conservation and sustainable development on a regional scale.”
(UNESCO, 1996:16)

BR’s should combine scientific knowledge and a participatory governance model to achieve these objectives. (UNESCO, 2014:b) In the Statutory Framework a BR management model is put forward to guide BR’s towards a sustainable development. There are some recommendations which are rather straightforward, but there is still a high level openness in order for the model to be applicable in the heterogeneous group of BR’s around the world. There is currently in total 621 BR’s in 117 countries (ibid), which each attempt to conform to the BR framework. On paper BR’s have signed up for a difficult challenge, to excel in demonstrating sustainable management practices. What is happening on a local level when an area receives the BR designation? How is a BR operating on a local level in order to engage different stakeholders in the strive for sustainable development? The aim with this thesis is to study the case of Mount Carmel BR. This area faces a number of challenges in terms of sustainability, such as a very high population pressure and internal conflict. By identifying consequences of the BR designation in Mount Carmel, lessons can be learnt both on a theoretical and a practical level, experiences valuable for the wider research field.
1.1 Aim and research questions
The aim with this thesis is to examine how the establishment of the Mount Carmel Biosphere Reserve (CBR) is manifested locally in regard to settlement development and stakeholder participation. By exploring classification techniques of remotely sensed images the goal is to map settlements within the CBR borders at four different points of time, from 1992 until 2013. What patterns in settlement development can be identified, and why have these changes occurred? Are these changes in accordance with CBR objectives? In addition other effects of the BR designation on the local level will be explored in terms of stakeholder involvement and knowledge sharing in the CBR. In many ways BR’s are an ambitious designation in comparison to other protected areas, as the BR designation incorporates the socio-economic dimension, to ensure a sustainable development for both people and nature. (Coetzer et al, 2014:99) An essential aspect in the management policy of a BR should be to promote participation of the many different stakeholders that can be found within the BR (UNESCO, 1996). In this paper it will be examined if there are examples of such participatory management practices in the CBR. Special focus will be given to the relation between the management authority Israel Nature and Parks Authority (INPA) and the two Druze villages Ussefiya and Daliyat al-Karmel in which the large part of the population of the CBR resides. By using multiple methods the aim is to map developed areas in the CBR from 1992 until 2013, and relate the findings to planning policy and to social and political aspects of environmental management. The CBR is one of currently 621 BR’s in the world, which all in their unique context seek to conform to the statutory framework for BR’s. This study sets out to identify what implications the BR designation led to in the case of the CBR, and relate this to the wider field of study on BR’s.

What effects have occurred on a local level after Mount Carmel became a UNESCO Biosphere Reserve in 1996?

This general question is below defined into three research questions that further determine the scope and direction of this thesis. These are derived from the three complementary key functions which a BR is supposed to fulfil as defined in the Seville Strategy; (1) conservation of biodiversity, ecosystems and landscape, (2) to foster sustainable economic and human development and (3) to support education, monitoring and research (UNESCO, 1996). Placing special focus on settlement development and stakeholder management, this thesis will explore the following research questions:

- What effects have the establishment of the CBR had on settlement development in the area?
- To what extent is the CBR conforming to the BR management model on involving stakeholders in planning and decision-making?
- What new initiatives in research and education have the BR designation led to, and how well is knowledge shared between the INPA and the various stakeholders of the CBR?
1.2 Definitions

**Developed areas** – in this thesis developed areas refer to the results acquired through remote sensing imagery classifications. According to validations made in the field this includes structures such as buildings, roads, industrial structures and quarries.

**Political ecology** – a field of research within human geography covering the relationship between environment and political, economic and social factors. (Gregory, 2009:545)

**Arabs** – the term is used frequently in literature studied for this thesis. When I use the term it is independently of their religious views. This is however not the case concerning the well documented “Israel-Arab conflict” (mentioned in this text) which assumes Israelis as Jewish and Arabs as Muslim. It is important to point out that there are also i.e. Arab Jews and Arab Christians in Israel.

**Sustainable development** – a development where needs are met without compromising the next generation’s ability to meet their needs, giving equal weight to the social, economic and ecological dimensions of society (Porter & Kramer, 2006:81)

1.3 Scope

This study is a master thesis written within the frames of the Master’s Programme in Urban and Regional Planning at Stockholm University. The thesis encompasses 30 ECTS credits, which correspond to approximately twenty weeks. Most of the thesis was written in Sweden, except from a sixteen day field study in Israel during which a large part of the empirical material was collected. The scope for this thesis has also
been shaped by being a part of the research project GLEAN. GLEAN is short for “A Global Survey of Learning, Participation and Ecosystem management in Biosphere Reserve”. It is a trans-disciplinary research project hosted by the Department of Political Science and the Stockholm Resilience Centre at Stockholm University. The project focuses on long-term interaction patterns between social and ecological systems within environmental management. The aim is to measure BR conservation effectiveness, with special regard to stakeholder management and processes of learning. (GLEAN, 2014)

The geographical scope for this thesis is simply put the administrative borders of the CBR. I have strived to stay aligned to these boundaries along the process. However in the field, the scope for this thesis became almost as difficult to define as the spatial configuration of the CBR in terms of management and landownership. Sometimes during interviews there were some misperceptions. An area that in the conversation was called the BR, often referred to the National Park (NP) and Nature Reserve (NR) areas within the CBR. Even I have had difficulty separating if it was the real BR or the NP an NR areas that were discussed when I was transcribing. Logic ruled in these situations. The focus in the thesis has unavoidably been shaped by those whom I held interviews with. As my aim evolves around settlements and stakeholder management, and the majority of the interviews I held were with the Israel Nature and Parks Authority (INPA) the focus rather naturally fell on the conflict between the Druze villages and INPA. None of the other larger villages within the CBR borders an NP or an NR (which the INPA manages), and therefore most sources did not have much information on them. This may have led to that I missed out on aspects relevant to the aim. Nonetheless further expansion of the subject might have been too much for the frames of this thesis.

1.4 Disposition
The first section of this master thesis gives a brief introduction to the field of study, presenting the aim and research questions of the thesis along with scope and definitions. The second section describes the context and history of the study area and a background to UNESCO BR’s. In the third section the research methods used to collect the empirical material for this study are presented and discussed. This section also contains a discussion on the value of case studies, and on ethical issues related to research and empirical work. The fourth section provides the theoretical framework for this thesis, discussing relevant theoretical concepts such as territorialisation and the production of space, participatory planning and management and the integration of development and conservation. The empirical findings are presented in the fifth section of this thesis. This part initiates with the rationales behind the BR designation and some essential, underlying aspects to the designation’s efficacy, followed by findings in relations to the research questions in corresponding order. In the sixth section the empirical findings are analysed and discussed in relation to the research questions, the theoretical framework and the wider field of study. Finally some concluding remarks and ideas for further research are presented in section seven.
2. Outlining the research field

This section aims to provide the reader with a background of the study area Mount Carmel and the research field, by describing some key aspects that are important in understanding settlement development and the relationship between the people and the park of Mount Carmel. A brief description of its geographical context is given, along with an account for the special history and political context of the study area. To relate this case study to a wider context, the history of land use and settlement policy in Israel will be outlined, along with a synopsis of the UNESCO Man and Biosphere Programme.

2.1 Mount Carmel Biosphere Reserve

The CBR is located in the northwest of Israel along the coast of the Mediterranean Sea. Geographically the area is divided into core, buffer and transition zones as shown in the map above, according to the BR concept. It covers approximately 26,600 ha of contrasting landscapes, rich in biodiversity. Even though Israel is a small country, a very wide variety of geographical features can be found within its borders, ranging from the desert in the South to the grassy hills of Golan, to the mountain ranges in the Galilee and the Carmel. As the most Southern outpost in the Eastern Mediterranean it is the meeting point between Europe, Asia and Africa, and a bridge between the biogeographic elements between the three continents. A famous example is found within the CBR, ‘Evolution Canyon’ which is located at Lower Nahal Oren. ‘Evolution
Canyon’ is a microsite where global biota representing the three continents can be found on different sides of the river, within the geographical scale of a couple of hundred meters. In terms of biodiversity, Israel is after Cyprus the species-richest in the Mediterranean, and Mount Carmel is one of the biodiversity hotspots in the country (Navel & Carmel, 2004:350; 386). The BR stretches over the Carmel mountain (about 400-500 m. above sea level) and the coastal plains below Carmel’s western slopes. The mountain features forest and woodland, mainly pine trees and oak, as well as shrubs, numerous flowers and a variety of wildlife. On the coastal plains the main land use is agriculture of different intensity, but the shoreline also host unique ecological values such as underwater sandstone ridges and an important nesting place for loggerhead and green sea turtles. The climate in the region is typical for the Mediterranean basin with mild wet winters and dry summers. (UNESCO, 2012, Naveh & Carmel, 2004)

The history of environmental protection on Mount Carmel starts far before it was designated a BR in 1996. Part of the Carmel Mountain became a NP in 1970. Then the NP covered 8,400 hectares, of which 3,100 hectares received NR status. Allegedly it was the regional planner Joseph Bruzkus from the Ministry of Interior that recognised the area’s unique ecological and cultural features, and with full support from Haifa municipalities and the Israel Society for the Protection of the Nature pursued the task of making it a NP. (Naveh & Carmel, 2004:352)

2.2 Landscape History and the CBR

Figure 3. View from Hai Bar Nature Reserve towards the Mediterranean. Photo by author.

The Mediterranean basin has been subjected to intense human activity over millennia. In fact, Naveh and Carmel claim that no other bio-climatic region in the world has endured such a long and intensive period of human-induced perturbations. In their article from 2004 they state that possibly nowhere else has it which such clarity been demonstrated that the people have had the power not only to destroy their habitat and deplete their flora and fauna, but also the ability to reclaim them, utilizing their biological productivity, and preserving their organic and cultural variety. (Navel & Carmel, 2004:338). Israel and the Carmel region is no exception. This is an important aspect both when interpreting and classifying landscape in the study area as well as
when assessing management practices in the protected zones. The landscape in this area has to a varying extent been shaped by human practices for hundreds of thousands of years. Within CBR borders is the UNESCO world heritage site Na‘hal Mearat caves with cultural deposits of at least 500 000 years of human evolution (UNESCO, 2014). The environment found within the CBR borders have surely gone through several alterations and transformations through the years. Two of the interviewees pointed out that the Carmel mountain has not always been the evergreen forest landscape that it to a large part consist of today. In the beginning of the 20th century Suisse researcher Graf Eberhardt von Müllinen was active in the region. He published the book “Beiträge zur Kenntnis des Karmels” in 1908 and according to his account the area was practically cleared from all forest during this period.

The forest found in the area today is semi-natural, in some areas planted. The afforestation of Mount Carmel has taken place for the past 90 years (Tessler et al, 2014). The large increase of the forest is a development prevalent in many places Israel, and it has a strong relation to the Jewish National Fund (JNF). JNF is a non-governmental organisation with branches all over the world. It was founded in 1901, and the aim was to establish a national fund to purchase land in Palestine (then controlled by the Ottoman Empire) to create a Jewish state. One of the central projects run by the JNF has been the afforestation of Israel, and since the organisation’s establishment they claim to have planted more than 240 million trees. (JNF, 2014a) The JNF is an important actor in the CBR. The organisation owns a substantial part of the land in the park, areas which are managed by them.

Another important actor that should be taken into account concerning the landscape in the CBR is fire. Wildfires are frequent in this area, especially during summer and in the transition seasons. Most fires occurring in the Carmel are caused by human activities; there is hardly any case of natural fire. (Tessler et al, 2011:1f) Studies show that there has been an increase of fires in general in the Mediterranean in the past fifty years, and quite often recurring fires hit the affected areas. A similar pattern has been
found in the Carmel, with 600 fires the last thirty years, whereof ten of them were larger than 100 hectares. (ibid; Tessler et al, 2014) One of the larger fires occurred in 1989, causing severe damage to the area. After this fire a lot of money was put into research on fire prevention, and a research committee was established. This resulted in a very large number of reports and articles, as well as a book with recommendations on management practices of Mount Carmel. In December 2010 the largest fire ever recorded in Israeli history occurred on Mount Carmel. The fire covered 2530 hectares, and approximately ten per cent of the CBR area was burnt. The fire ended in a terrible tragedy as 44 people died in the flames. Most of the victims were prison guards returning to a prison near Ussefiya to evacuate prisoners as their bus was engulfed in flames. The tragedy and the extent of the fire prompted the government to rather immediate action. Again a committee was established to investigate the cause of the fire and to assess the damage, and to formulate recommendations for rehabilitation and fire prevention in Mount Carmel. In many respects, the new recommendations were similar to those issued by the committee following the 1989 fire. (Tessler et al, 2011:3; Nemtsov, 2013:6f)

2.3 UNESCO Man and the Biosphere Programme

The history of conservation is long and diversified, which is well documented in William Adams monograph “Against Extinction” from 2004. Throughout the 20th century the dominating ideas and measures in promoting biological diversity has mainly been through the establishment of protected areas (Adams, 2004:4). In 2014 protected areas cover by estimate 12 per cent of the world’s surface (Holmes, 2014:1).

The academic discussion on the role of these protected areas and how they should be managed has fluctuated. However in general the majority of parks formed during the first half of the 20th century were implemented through so called fortress conservation; strict protection in well delimited areas. During the environmentalist wave in the 1960’s and 70’s Thomas Malthus theories on population and resources were rediscovered, which inter alia reinforced a negative perception of human impact and the need to protect and manage areas considered of high value (Adams, 2004:152f). Parallel to this development other ideas on the relation between people and protected areas developed, to view the local population as stakeholders with whom beneficial relations must be formed rather than viewing them as a threat towards conservation policy. One source of such new ideas were UNESCOS’s Biosphere Reserve, a concept formed 1974 under the ‘Man and the Biosphere’ (MAB) Programme which was established in 1971. (ibid, 117f) Initially MAB was envisioned as an interdisciplinary and international approach to resolve ecological management issues. As part of the Programme, sites of certain environmental value were designated as BR’s. These were to function as platforms of monitoring and learning sites, where new knowledge and experiences could be exchanged via the MAB Programme network. The MAB Programme centred around three major themes: (1) conservation of genetic resources and biodiversity, (2) research and monitoring and (3) ecologically sustainable development. In other words there was still an emphasis on ecological issues. Since then the BR concept has developed to incorporate a wider conception of sustainable development, where the relationship between people and ecosystems is given increased attention. (Coetzer et al, 2014:83f)

As previously mentioned the BR concept is hence a rather ambitious designation as it sets out to achieve a sustainable socio-economic development for the people living in the area. According to the Seville Strategy BR’s are to fulfil the following three functions (1) conservation of biodiversity, ecosystems and landscape, (2) to foster
sustainable economic and human development and (3) to support education, 
monitoring and research (UNESCO, 1996; Schultz et al, 2011). These functions and 
the definition of a UNESCO BR will be further discussed in section 4.1.

Physically a BR should contain three different types of zoning; core, buffer and 
transition zones. The core zone or zones should have strict formal protection, such as 
designated NRs, for conservation of biodiversity and monitoring. They should only be 
subject to very low levels of human impact (i.e. for education). A core area is 
normally surrounded by or adjoined to a buffer zone. In a buffer zone, activities 
consistent with sound, ecological management can be carried out, such as ecotourism, 
recreation and research. In the transition zones other more intensive land use is 
allowed, such as settlements, agriculture and other traditional resource use. Transition 
zones are also referred to as an area of co-operation in the Seville Strategy, where the 
local community, management agencies, researchers, non-governmental organisations 
and other stakeholders should work together to manage and develop the area’s 
resources. (UNESCO, 1996; Coetzer et al, 2014:83f) The MAB network has 
continued to grow steadily during the years. In 2013 another twelve areas were added 
to the World Network of Biosphere Reserves (WNBR), and there is currently 621 
BR’s in 117 different countries (UNESCO, 2014b).

Figure 5. Map with the 621 BR areas in the world. Source: UNESCO, 2014b

2.4 The demographics of Mount Carmel
As already mentioned, human practices are an important factor that has shaped the 
landscape in this region throughout history, and today is no exception. There is a 
conservation-development conflict in the region of Carmel with an increasing urban 
development into areas with high ecological value (Wittenberg & Malkinson, 
2009:299). The population pressure is high in the region and the CBR is located on 
the urban fringes of Haifa, Israel’s third largest city. Haifa has approximately 272 200 
inhabitants in the city of Haifa, with about 1 073 900 living in the extended 
metropolitan area (Israel Central Bureau of Statistics, 2013a). Approximately 200 000 
were living within the CBR borders in 1996 (UNESCO, 2002). This number is 
however bound to have increased the last 18 years. A number of smaller towns can be
found within the BR. The largest ones are Daliyat al-Karmel, Ussefiya, Fureidis and Atlit. In addition a part of the town Tirat Karmel lies within the CBR border in the Northwest, as well as parts of Nesher in the Northeast. (Israel Central Bureau of Statistics, 2013b) There are also a number of kibbutzim and moshavim in the CBR, mostly in the coastal areas. Table 1 shows the steady increase of population in these towns for the past 30 years.

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<tr>
<td>Daliyat al-Karmel</td>
<td>8500</td>
<td>11600</td>
<td>15000</td>
<td>16000</td>
<td>37.9 %</td>
</tr>
<tr>
<td>Ussefiya</td>
<td>6300</td>
<td>8300</td>
<td>10600</td>
<td>11300</td>
<td>36.1 %</td>
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<tr>
<td>Fureidis</td>
<td>5200</td>
<td>7700</td>
<td>10800</td>
<td>12100</td>
<td>57.1 %</td>
</tr>
<tr>
<td>Atlit</td>
<td>2500</td>
<td>4200</td>
<td>5000</td>
<td>6000</td>
<td>42.9 %</td>
</tr>
<tr>
<td>Tirat Karmel</td>
<td>15500</td>
<td>17600</td>
<td>18600</td>
<td>18600</td>
<td>5.7 %</td>
</tr>
<tr>
<td>Nesher</td>
<td>9700</td>
<td>18900</td>
<td>23300</td>
<td>23200</td>
<td>22.8 %</td>
</tr>
</tbody>
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Table 1. The graph above shows population development of the towns located in the CBR from 1983-2012, rounded to even hundreds (Israel Central Bureau of Statistics, 2013c). 1996 which is highlighted in green is the year Mount Carmel was designated a BR.

In Daliyat Al-Karmel and Ussefiya almost the entire population is Druze. In Fureidis the population is to 99 per cent Muslim Arabs, whereas in Atlit the population is almost entirely Jewish. The population living on the kibbutzim and moshavim are naturally Jewish. (Israel Central Bureau of Statistics, 2013b)

1 The numbers from 2008 for Ussefiya and Daliyat Al-Karmel was merged, as these towns then officially were merged into the City of Carmel with a total population of 25600. The proportion of inhabitants living in each town was calculated based on the proportion of inhabitants between the towns previous years. In 2012 Ussefiya held 41.39 % of the inhabitants of the two villages, in 1995 41.71 %. Assuming the change was linear I calculated the percentage to be 41.47 in 2008, and correspondingly 58.53 in Daliyat Al-Karmel.)
2.5 The Druze population
The Druze is a religious minority, constituting about 1.5 per cent of the population in Israel. Most of the Druze in Israel live in villages in the North of Israel, f.e. around Mount Meron. Daliyat Al-Karmel and Ussefiya are the Druze villages furthest south in Israel. According to some sources Daliyat Al-Karmel was established some 400 years ago, and it was allegedly the largest Druze town in Israel in 2002. (Aridi, 2002:5) The history of the Druze is debated, but most scholars believe the Druze are Arabs that split from the Islamic doctrine in the eleventh century. Traditionally their religion is secretive and complex, revealed entirely only to their religious leaders that have a prominent status in the community. Allegedly three things are sacred to the Druze; religion, women and land. The Druze have in many of the countries they reside acquired recognition for their ability to conform to their local governments. (Yiftachel & Segal 2010:483) The Druze were active participants (almost all communities) on the Israeli side in Israel’s war of independence in 1948, and they are the only minority that serves the Israeli Army (ibid). However the relation between the Druze and the Israeli government has not been without conflict throughout history, which is the case also with the Druze in Mount Carmel. A lot of the land surrounding the two villages Daliyat Al-Karmel and Ussefiya is private land, owned by Druze families. As these areas became protected areas, these families faced a number of restrictions on their own land. This created a difficult divide between the local Druze community and the INPA, a conflict between settlement expansion and nature conservation that it on-going still today (Nemtzov, 2013:11).

Figure 6. Daliyat Al-Karmel. Source: Google Maps.

2.6 The history of settlement policy in Israel
To grasp the current situation on settlement development and conditions for stakeholder management in the CBR, there are certain things one needs to know about Israeli policy for settlement development and territorial control. The matter of settlements, or rather population, has been a focal point in national planning policy of Israel ever since the country was established in 1948. In fact, it was a focal point even before the state of Israel was declared (Orenstein & Hamburg, 2010: 224). It emanates out of the Jewish people’s history of persecution and deportation, both from the original homeland and during the diaspora. The concept of a Jewish nation has been prevalent in Jewish religion for thousands of years. (de Lange, 2000:27f) At the end
of the 19th century the Zionist movement gained momentum. Three central objectives of the Zionist movement were (1) to attain freedom for the Jewish people, (2) to concentrate the Jewish population and (3) to implement the two previous goals in the state of Israel (Kellerman, 1993:33). During the following centuries there was a number of emigration waves (Aliyahs) to Palestine, which in 1917 came under British rule. During the first half of the 20th century the previously mentioned JNF along with other Jewish organisations and individuals purchased large amounts of land in Palestine on which Jewish settlements were established (JNF, 2014b). The implementation of the state of Israel has been conditioned much by the creation of these settlement patterns (Kellerman, 1993:33), where the settlements have been used as a means of ensuring territorial control (Newman, 1989:219). The new settlements led to a growing conflict between Jews and other communities, often Arab, in the area. (On the use of the term Arab, see section 1.2). The establishment of the state of Israel led to an explosion in the Israel-Arab conflict, as Syria, Egypt, Jordan and Iraq declared war. This was followed by a series of outbreaks, i.e. 1967 and 1973. As stated by Newman, the Israel-Arab conflict is prevalent also on an internal level, where it stands “between a dominant (Jewish) and subordinate (Israeli Arab) population” (1989:218). Between 1948 and 1966, the state of Israel imposed military rule over the non-Jewish minorities that remained within the country’s borders, in practice meaning they were excluded from Israeli politics. Land use policy has in the State of Israel been recognised as a powerful means of state control and for achieving political objectives. (Yiftachel & Segal 2010:480ff) Following 1948 Israel implemented the Aryeh Sharon plan imposing an expansive settlement policy with dispersed development towns in strategic and often peripheral parts of the country along borders. During 1947-1956 no less than 360 new rural communities were established. (Kellerman, 1993:75ff, Orenstein & Hamburg, 2009:986f) After the 1967 and 1973 war Israeli policy makers and planners put their attention towards regions in Israel where Arabs made up a significant percentage of the population: the Galilee, eastern Sharon plains and the northern Negev desert. This led to a number of settlement initiatives, such as the ‘Judaization of the Galilee’ in the 1970-80’s, the ‘Pithat Shalom project’ of the early 1980’s and the ‘Seven Stars Plan’ of the 1990’s. Parallel to these settlement initiatives, Arab community development have been constrained spatially by various restrictive land-use policies. (Orenstein & Hamburg, 2009:987) Conclusively, the act of establishing settlements in Israel is loaded with political meaning in Israel. So where are the Druze in all of this? At first, Israel treated the Druze as part of the larger Muslim Community, just as the Ottoman and British rulers had before them. However this changed as concessions were established for the Druze in 1957, during military rule. They were enrolled into the Israeli army and special Druze departments were established in several government ministries. With the enlisting in the Israeli army came promises of social and economic benefits, and the rhetoric was that they now were in “blood covenant” (Yiftachel & Segal, 2010:485) with the Jews. With it came also clear commitment towards the Palestinian minority, as Druze units for example stood in the forefront of the Israeli army during the intifada 1987-93. The Druze do not consider themselves treated with the equality they expected, which has led to a campaign for civil equality that has been on-going for centuries. (ibid, 485f)
3. Methods

This study will rely on a mixture of research methods. This is to acquire wider perspective and to strengthen the reliability of the result through a so-called method triangulation (Valentine, 2005:112). The empirical material was collected partly in Sweden, partly in situ during a sixteen day long field study in Israel. The three research questions defined in section one have been explored through satellite imagery analysis in GIS and interviews with a number of actors in the CBR, along with participatory checking, observations in the field and literature studies. The research methods are presented below, after a short discussion on the use of case study methodology.

3.1 Case study methodology

Case study research has had a rather widespread use within the field of human geography recent decades. One important rationale for using case studies within human geography is the study of theoretical concepts or tools in a specific geographic context. (Castree, 2005:541f; Gregory & Johnston, 2009:72) The use of case studies has however met a fair amount of critics, both within human geography and the wider field of social sciences. One of the key criticisms is that it is impossible to generalise from one case study, and therefore case studies cannot contribute to scientific development. (This discussion is related to the discussion of quantitative and qualitative research, a common distinction within research.) (Flyvbjerg, 2006:221, 242) Another typical critique is the difficulty of comparing case studies and contextual effects (Castree, 2005:543). In an article from 2006 Flyvbjerg lists what he refers to as five misunderstandings of case-study research, amongst other the sharp critique concerning making generalisations based on a case study. Flyvbjerg emphasise that generalisation is merely one of the ways of how scientific knowledge is accumulated. He poses strong argument that case study methodology may function as the basis of scientific research, exemplifying with how carefully chosen cases or experiments have been essential throughout the history of academic research. Without favouring any of the two, he points out the need for both case studies and research relying on larger samples or populations. Both types are essential for the development of social science. (Flyvbjerg, 2006)

Taking Flyvbjerg’s ideas on case studies into consideration, an important aspect when conducting contextual research is to establish and maintain a connection to the wider research field. As this study is conducted within the frames of the research project GLEAN, it is naturally related to a wider field of research. There are hence other case studies in direct relation to this case study. In addition the issue of communicative management within environmental planning is a field of research gaining increased attention, expressing the need to evaluate environmental management practices in relation to the concept of sustainable development. This study is therefore not only of value to stakeholders in the CBR, or to researchers involved in the GLEAN project. One of the key aspects of the MAB is a network through which experiences and knowledge can be exchanged (UNESCO, 1996:16). Even though not written directly in relation to the MAB network, this study may fill a function in this regard. By identifying consequences of the BR designation in Mount Carmel, lessons can be learnt both on a theoretical and a practical level, experiences valuable for the wider research field.
3.2 Literature studies
As typical when making a case study, this study was initiated with literature studies (Yin, 2009:3). The literature study material consists of e.g. scientific articles on planning policy in Israel and place-specific articles as well as literature on the wider topic of UNESCO BR’s, political ecology and on the relation between development and conservation strategies. In addition I have received documentation on management strategies and objectives of the CBR from officials at the Israel Park Authority.

3.3 GIS and remote sensing imagery classification
An important part of the empirical study has been conducted in GIS, where a series of satellite images covering the study area have been classified into different categories. All GIS analysis has been conducted in ESRI’s software ArcMap. There is not yet any universal method to extract and classify information from satellite data into land use from any satellite image. There are however numerous examples of successful methods on separate images or a series of images (Wästfelt et al, 2011:475; Wiens et al, 2008:1380; Wästfelt, 2009:2422), which were used as guidance when identifying a classification technique for this case study.

The aim has been to map settlement development within the CBR. Separating houses from i.e. roads and industry has proven very difficult during the process. The results rendered through this analysis method are therefore continuously referred to as developed areas. The focus was on mapping developed areas, but as the method process all pixels in an image other types of land use has been mapped as well, however with varying accuracy. The following four LANDSAT images were processed for analysis within this study, the first one from prior to the BR designation of Mount Carmel:

<table>
<thead>
<tr>
<th>DATE</th>
<th>LANDSAT SENSOR</th>
<th>IMAGE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/31/1992</td>
<td>LANDSAT 4</td>
<td>LT41740371992152XXX02</td>
</tr>
<tr>
<td>5/29/2000</td>
<td>LANDSAT 5</td>
<td>LT51740372000150XXX02</td>
</tr>
<tr>
<td>5/1/2007</td>
<td>LANDSAT 5</td>
<td>LT51740372007121MOR00</td>
</tr>
<tr>
<td>6/2/2013</td>
<td>LANDSAT 8</td>
<td>LO81740372013153LGN00</td>
</tr>
</tbody>
</table>

As all satellite imagery, LANDSAT images consist of a number of spectral bands. Simply put, these spectral bands are rasters or images that consist of a certain number of rows and columns with pixels. The number of rows and columns depend on the size of the pixels (spatial resolution) and size of the area covered. In the case of LANDSAT data the spatial resolution is 30 meters. Each pixel has a value which represents the amount of reflectance (see below) within the pixel’s coverage on that particular band. Each band operates on different wavelengths along the electromagnetic spectrum. Bands in LANDSAT images range between wavelength micrometers (µm) 0.45 and 2.35 for LANDSAT 4-5, and 0.43 and 12.51 for LANDSAT 8 (spectral resolution). Another important aspect to be familiar with concerning satellite data is bit-depth, simply put the amount of brightness levels (radiometric resolution). LANDSAT 4-5 are 8-bit images (0-255), while LANDSAT
8 is 16-bit (0-65535). In this case the 16-bit image from 2013 was converted and rescaled to 8-bit. (NASA, 2011)

Different types of land cover emit, absorb or reflect different amounts of electromagnetic energy. Various characteristics on the earth’s surface are easier to distinguish on the different ends of the electromagnetic spectrum. As an example, water is easy to distinguish on the Blue band, which for LANDSAT 5 satellite images is band 1. On the Blue band water bodies reflect very little light and therefore those pixels will have much lower values than i.e. forest, in contrast to in the green band (band 2 in LANDSAT 5) where these types of land cover will have similar values. When it comes to mapping housing, the green and red bands are useful for cultural feature identification along with other bands indicating biomass content (or rather the lack of it) (Lillesand & Kiefer, 2004:396). For this study the blue, green, red and near-infrared bands were chosen and processed into a RGB composite for each year.

Several different remote sensing imagery classification techniques where then tested, both supervised and unsupervised classification techniques, with the 2013 composite image as trial image. This part of the process required a large measure of inductivity, where the results were validated through visual interpretation towards the original LANDSAT photo or through interactive map services such as Google Maps Satellite Imagery. The main difficulty during this process was to separate some types of agriculture from developed areas. Eventually some of the transition zones with high-intensity agriculture along the coast were excluded (see Figure 8).
Ultimately the best results were acquired through a supervised classification technique, where so-called training sites were created by the author to specify types of land use.

These training sites were used for Maximum Likelihood Classification in ArcMap, a technique that classifies the image into categories based on the training sites. This is a per-pixel based technique where the classification is based on the spectral characteristics of each pixel (Gao, 2009), and hence it does not consider contextual aspects beyond pixel size. This will be managed in a later step. Maximum Likelihood Classification uses an algorithm which is based on two principles: cells in each class sample are normally distributed in the multidimensional space, and a probability weighting based on Bayes’ theorem of decision making. Considering both variances and co-variances from the training sites, a resulting class can be characterised both by the mean vector and the covariance matrix. (ArcGIS Help 10.1, 2014) These steps of the methodology required a large measure of inductivity where (in this case) parameters are adjusted through visual interpretation. In the final results, the number of training classes varied from 26 to 31 for the four different satellite images, with 11-13 classes representing agricultural land. As a next step to capture contextual characteristics, the Focal Statistics tool was used, taking into account the three adjacent pixels (90 meters) around each pixel using the Majority method. (This means a pixel is given the same value as the majority of those adjacent pixels). This is a so-called moving window technique. Even though moving window techniques have some drawbacks such as generalised boundaries, it was helpful in this case as it captures contextual features. Through this method it is likely that single sheds in the forest were removed, while lands that had been transformed to developed area were captured. There were some small clouds within the processing area on the 1992 image. These areas have therefore been removed from the results (see figure 9).

Figure 9. LANDSAT composite images from 1992 and 2013 over Ussefiya and Daliyat Al-Karmel. The black areas are clouds and shadows in 1992, removed from results. Map by author.
3.3 Participatory checking

During the process areas of interest were identified, where changes in developed areas appeared to have occurred between the four different points of time 1992-2013. The results were brought to Israel as maps, and used as a source of discussion during the interviews. This kind of method is referred to as participatory checking, where representations of the study area is shown to interviewees or informants. Participatory checking is a methodological framework that can be used both to validate data and to acquire new data. (Årlin et al, in press). In this study the method worked both as a way to spark the discussion, as geographical reference during discussions, and to critically evaluate the validity of my results with people that have local knowledge. As the result maps were a longitudinal study, they were also a reference to the past. The result maps were also brought during observations in the field when traveling around in the CBR with rangers working at the INPA. When in the field, the results from 2013 were validated by using the GPS in an iPad. Through this method developed areas could be defined as housing, buildings of commerce, roads and in some cases industrial activity such as quarries. This validation occurred seven months after the LANDSAT image was taken, and naturally things can happen during this time. Still the results can be considered quite valid, since the intent has been to map such large structures. Houses and other human structures that may fall into the category of developed areas are rather stabile occurrences in a landscape. They are not that easily moved or removed, an aspect we will return to later in this thesis.

3.4 Interviews

A large part of the empirical material was collected through interviews. These were conducted during a sixteen day long field study. In total interviews were held with fifteen actors related to the CBR in different ways. In addition conversations were held with three more actors, but these conversations were not recorded. The actors interviewed can be divided into four different groups: employees at the INPA (10 interviewees), researchers with experience of research in the CBR (2 interviewees), actors with employment at or for the local council of the Druze villages (2 interviewees) and residents in the CBR (4 interviewees). Note that some of the interviewees represent more than one group. The interviewees were chosen through so-called snowballing, in other words interviewees provided me with names and contact information to new interviewees (Valentine, 2005:117f). A first contact was acquired through the research project GLEAN. The number of interviewees was decided by the time frame. All interviewees were provided the opportunity to be anonymous. Even though some of them stated that they were OK with their name being public in the thesis, I chose to let all informants be anonymous. (Vetenskapsrådet,2005:69f) This is much due to the fact that I study a conflict-ridden context, and sometimes matters of rather sensitive nature come up. See table 2 for abbreviated references used for the fifteen interviewees.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td>Interviewee from managing organisation (INPA)</td>
</tr>
<tr>
<td>LI</td>
<td>Interviewee from local community/council of Ussefiya</td>
</tr>
<tr>
<td>UI</td>
<td>Interviewee from Haifa University</td>
</tr>
<tr>
<td>GI</td>
<td>Interviewee from the Ministry of Interior (Israeli Government)</td>
</tr>
</tbody>
</table>

Table 2. Abbreviations used when referring to interviewees.
During the interviews a loosely structured interview method was used. For interviews held with employees as the INPA I had interview guides from Stockholm Resilience Centre, developed for the research project GLEAN. During other interviews, interview guides of a simpler design were used, developed by the author. These questions worked as an outline, however I was not strict on order but rather concentrated on fluent conversation that left room for the interviewee to develop aspects they consider relevant (Valentine, 2005:120). The interviews were held in English. However in one case, the interviewee had limited linguistic skills in English. This interview was therefore held with help from two of the interviewee’s colleagues who interpreted parts of the interview. In two cases the interviews rather turned into focus groups, where the interview became a discussion between two or three actors. In one case, this was when using two interpreters. When they expressed their own opinions on subjects that came up I did not stop them. In another case some questions asked during the interviews awoke other people’s attention, which led to their participation. All interviews were recorded, using the smartphone application iTalk on iPhone 5, and then transcribed by the author. The transcribed versions of the interviews were subsequently sent to the interviewees by email, enabling them to make changes and additional remarks if they wished. Two interviewees asked to make small alterations in their statements. There was also plenty of informative conversation between interviews, which was not recorded. These conversations are occasionally referred to in the empirical material, however clearly denoted as informal comments.

Thematic analysis was then used to validate and analyse the material, a method where the material is organised and coded after recurring themes (Boyatzis, 1998:4). The transcribed interviews were printed and then coded by different colours by some major topics identified during the interviews. This made it easier to compare the statements from the different interviewees. Subsequently the material was organised by the connection to the research questions and overarching aim.

In addition a meeting was held at the Technion Israel Institute of Technology on the 31st of March. In this meeting members of a research group at the Faculty of Architecture and Town Planning participated, consisting of researchers, PhD students and master students, all of them with special insight in the CBR. During this meeting I held a shorter presentation of my thesis, which was followed by a group discussion. This meeting did not follow the structure of any the interview guides, neither was it recorded. The discussion has however functioned as an important source of information and contact with other actors, and I took a lot of valuable notes during the meeting.

3.5 Observations and mapping

During the field trip a number of observations were carried out in the CBR area. It should be pointed out that this was a complementary research method, and the results of the observations only make up a minor part of the empirical material. As previously mentioned the results of the satellite imagery analysis were brought to Israel as maps, both in paper and digital format. These maps were loaded as pdf-files into the application PDF Maps on an iPad. By using the GPS in the iPad I was able to add placemarks in the map during my observations in the field. During my observations in the Druze villages I also held very informal chats with a few residents
of Ussefiya. These talks did not follow any predefined structure, neither were they recorded. However notes were taken within twenty minutes after these conversations.

3.6 Research ethics and reflexivity

First of all I would like to point out that the collection of empirical material was a journey not only in spatial terms. The idea for this thesis emanated out of previous contributions in the GLEAN project, where I was working with a time series of satellite data for several BR’s. The aim was to explore the potential of using remote sensing imagery for monitoring land use development in BR’s. The objective with the thesis was, initially, to explore these possibilities in the specific case of the CBR. In addition I wished to investigate the potential for other methods for stakeholder management practices that involve GIS, i.e. the use of interactive web GIS to inform and to communicate with the local population.

Short after my arrival in Israel the material that I had produced through GIS analysis back in Sweden led me to some findings that eventually made me change the focus for this thesis. Still convinced that GIS may be a potent tool in stakeholder management, I came to the decision that other aspects are far more crucial and interesting in the case of the CBR than exploring GIS tools. Halfway into my thesis work I therefore made the choice to lead my thesis in a different direction. As discussed by Massey the movement from your “own room” to the field, finally encountering the object of study, is most often an unpredictable process when conducting research (Massey, 2004:86). During my first encounters with the field I quickly learned it was far from the imagined field I had expected. One crucial aspect is that the majority of the people did not really relate to it as a BR, an aspect which my thesis evolves around. We will return to this aspect in section 5. Massey points out there are some ethical issues of this “encounter” with the field:

“On the one hand, there may be an ideal, an absolute imperative, against which you would like to behave; on the other hand, there are the real constraints and particularities of this specific situation”. (ibid, 87)

I found myself in several situations where I made alterations concerning the collection of empirical material. In most cases I tried to hold interviews in quiet and private surroundings, but several times this was not an option. In two cases the interviews rather became focus groups, with three interviewees participating. As previously mentioned I made the choice to adapt to these situations rather enforce “my way”, as I noticed there was good chemistry between the participants. This sparked the discussion in a way I would not have been able to achieve in a regular interview. Thrift discussed this kind of situations that can occur in the field. Research comes with this responsibility, to handle dilemmas that arise in the field where our behaviour as researchers may have great impact on the results. Thrift underlines the value of openness and good judgement, and to allow both the researcher and the researched some freedom in the process (Thrift, 2009:120).

During each step in the research process I have strived to achieve reflexivity, to keep a consciousness over how my findings have been shaped by my own perspective and role (Thornberg & Fejes, 2009:226). As Massey points out, it is impossible to acquire a “positionless objectivity” (Massey, 2009:75). My Swedish perspective was pointed out to me several times during my fieldwork. This was for example during
discussions on the conflicts prevalent in the area, where I probed for ways to mediate between the actors. The response was two times a gentle smile and a reminder that I was now in Israel. Conducting research in an unfamiliar context has its implications. I have little experience of the type of religious or ethical conflicts which shape Israel, also in the case of Mount Carmel. This affected my behaviour as an interviewer, and made me tread more carefully in some subjects. Another aspect that should be mentioned is that there is an overrepresentation of INPA employees in my interviews. This is due to a focus of the managing organisations in the GLEAN project. During the analysis of my empirical material I have tried to give equal weight to the various views that have been expressed during the interviews. Still it is important to keep in mind that this study is not a perfect representation of the situation in the CBR. There are in this case more than two sides of the coin, and I am glad if I have been able to capture some of it.

Figure 10. Sheep grazing in the CBR. Photo by author.
4. Theoretical framework

This thesis rests on a theoretical framework of ideas within the fields of political ecology, legal geography and communicative planning, subfields within the discipline of human geography. The aim with this section is to give an outline of relevant research and to theorise the concept of BR’s and the BR model. The emphasis lies on the objective of making BR’s “learning sites” in for sustainable development by applying a participatory management structure (Schultz, 2010). Furthermore the concept of territorialisation will be explored, and the role of political goals and legal power in the production of spatiality. Consequently this will be related to the discourse on regional planning and environmental policy in Israel.

4.1 UNESCO BR definition, functions and criteria

As defined by UNESCO, BR’s are “areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO’s programme on MAB, in accordance with the present Statutory Framework.” (UNESCO, 1996:16). To be in accordance with the present Statutory Framework, BR’s need to fulfil the criteria presented in table 3, along with the three core functions below.

1. Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation;
2. Development - foster economic and human development which is socio-culturally and ecologically sustainable;
3. Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development. (ibid)

| 1. | It should encompass a mosaic of ecological systems representative of major bio-geographic regions, including a gradation of human interventions. |
| 2. | It should be of significance for biological diversity conservation. |
| 3. | It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale. |
| 4. | It should have an appropriate size to serve the three functions of biosphere reserves. |
| 5. | It should include functions, through appropriate zonation, recognizing: |
| a. | a legally constituted core area or areas devoted to long-term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives. |
| b. | a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place. |
| c. | an outer transition area where sustainable resource management practices are promoted and developed. |
| 6. | Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and carrying out the functions of a biosphere reserve. |
| 7. | Provisions should be made for: |
| a. | mechanisms to manage human use and activities in the buffer zone or zones. |
| b. | a management policy or plan for the area as a biosphere reserve. |
| c. | a designated authority or mechanism to implement this policy or plan |
| d. | programmes for research, monitoring, education and training. |

Table 3. BR criteria as formulated in the BR statutory framework. Source: UNESCO, 1996.
4.2 Integrating conservation and development
As discussed under 2.3, early models for conservation were so called fortress conservation areas, guided by Western ideas of the relationship between people and nature (Neumann, 1997:560). Parallel to a shift in perception of the relationship between people and nature, there was a call for the development of a more holistic and place-based approach in environmental management (Stewart et al., 2013:3). In a report for the World Conservation Union from 1988, Sara Oldfield emphasised this great demand for new ideas, as local people all too often see parks as government-imposed restrictions on their traditional rights (Neumann, 1997:561). The BR model is not unique in its aim to incorporate socio-economic factors in environmental management to achieve sustainable development. There were other models for sustainable conservation practices developed at least a decade earlier, often referred to as Integrated Conservation and Development Projects (ICDP) (Coetzer et al 2014:91).

There is a variety of research on the subject of integrating biodiversity conservation and socio-economic development in environmental planning. A point of conclusion that link the majority of the contributions to the subject, is that is has proven difficult to implement (Hughes & Flintan 2001:7, Neumann, 1997:564ff). As previously mentioned the wider perspective on conservation incorporating the socio-economic dimension was integrated in the BR model in the Seville Strategy and Statutory Framework from 1996. The objectives of the BR designation and the WNBR were then adjusted to conform to new ideas on sustainable development, formulated in the Brundtland report Our Common Future 1988 (Adams, 2004:117) According to a number of studies implementation of the BR model has also met difficulties; a large number of BR’s fail to conform to the BR model. (Coetzer et al, 2014; Ishawaran et al., 2008; Schultz & Lundholm, 2010; Schultz et al., 2011). Prior to the Seville Strategy the efficiency of the reviewing system towards the BR model was also questionable (Coetzer et al, 2014). Every BR is implemented under the authority and legislative terms of each country, and in many cases BR’s had another type of protection (i.e. NP, NR) prior to BR designation. Those two aspects along with other contextual determinants risk creating a considerable gap between the BR concept and reality, rendering the BR conservation model simply a theoretic concept. (ibid)

While one of the core functions of a BR is to foster sustainable development through management, some scholars point out sustainable development has been somewhat slow to deliver on an international scale (Coetzer et al., 2014:100). Perhaps this is due to the complexity of the concept. As Redclift (2003) puts it, the very strength with the word ‘sustainable development’ is its vagueness. It means different things to different people. He lifts the issue of epistemology concerning sustainable development, concerning who acquires information and knowledge, and how it is integrated into conceptual systems. He lifts these aspects only a few years after Our Common Future was published and argues the concept of sustainable development is based on “Northern” ideas, that knowledge is acquired through the application of scientific principles (ibid, 322). The value of traditional knowledge has since been acknowledged in numerous studies, also in studies on sustainability and land use (Ferkes et al, 2000; Fairhead & Leech, 1995). Integrating these ideas to the BR objective of fostering sustainable economic and human development, there are some useful points in relation to management. A first notion is that sustainable development is a complex objective, and it may be difficult to achieve through isolated conservation-development (Coetzer et al, 2014:100). This emphasises the value of a global network such as the WNBR, given that BR’s share and assimilate knowledge
and engage in collaborative initiatives. Furthermore it underlines the value of interdisciplinary research in BR’s. On a more local level it highlights the importance of engaging many different stakeholders in order to acquire knowledge of the many dimensions on sustainable development.

The third function on logistic support in research and education in BR’s is hence put forward as an imperative tool to reach the overarching objective of sustainable development (ibid, 101; Ishawaran et al, 2008:130). In the Madrid Action Plan it is stated BR’s should be dedicated to address and learn from efforts to achieve and maintain a balance between conservation of nature and biodiversity and socio-economic development of people and places (UNESCO, 2008). UNESCO recommendations on achieving these goals are found in the official criteria (Criteria 7d, Table 3). Schultz and Lundholm’s study from 2010 is an attempt to measure the level of compliance to these criteria on a local level. They conducted a survey to investigate whether BR’s fulfilled the goal to (potentially) serve as learning sites of sustainable development. The criteria defined for this study were that the respondents through self-evaluation considered themselves giving it at least medium priority to one or more objectives related to research, monitoring and education; that the efficiency to reach those objectives was at least acceptable, and finally that the BR management provide the opportunity for different stakeholders to meet. Out of 148 respondents, 79 fulfilled the criteria. According to this study there was also little evidence of cross-scale learning within the WNBR. (ibid)

### 4.3 Stakeholder management

In the Seville Strategy it is established under Objective II.1 that BR’s should secure the support and involvement of local people. To reach this objective on the local level it is recommended to i.e. “survey the interests of the various stakeholders and fully involve them in planning and decision-making regarding the management and use of the reserve”, “develop alternative means of livelihood for local populations” and “use of local techniques and labour”. (UNESCO, 1996:7f)

Numerous scholars have put stakeholder management forward as a way of dealing with the complexity of sustainability issues (Schultz et al, 2011; Hage et al, 2010; Reed, 2008; Ishawaran et al, 2008). The pragmatic incentive for stakeholder participation is the growing perception that ecosystems and socio-economic systems are interdependent, adapted and multi-scale (Schultz et al, 2011). In order to manage these complex systems, stakeholders representing different ends in this system are included to acquire knowledge from the different perspectives. The inclusion of multiple stakeholders, flexibility and adaptability is put forward as important aspects in environmental planning. (Schultz et al, 2011:662; Reed, 2008: 2422) Within the field of urban and regional planning, this is often referred to as communicative planning or participatory planning. The imperative is to foster a higher level of openness in decision-making (Fischler, 2000:358). The planner is to take on a new role, from the traditional, modernistic planner as the rational expert towards a more negotiating role, coordinating the planning process through a bottom-up approach. Furthermore flexibility in the planning process is emphasised. (Sandercock, 2003) There is a lot of critique pointed towards communicative or participatory approaches. The critique is often directed towards a naivety of the concept; that the strive for consensus is unrealistic. As an example, Flyvberg called on academics to “focus
planners’ attention on the dirty work of democracy rather than the loft ideal of consensus building free of constraints” (Fischler, 2000:358). There may be a high cost to consensus concerning short-term efficacy. There may in addition be risk of overrepresentation of some groups in society, and not necessarily the more vulnerable groups (ibid, 365). However there is also potential for increased efficacy, with the potential of a stronger knowledge base in decision-making. Sandercock states that there must an “epistemology of multiplicity” within urban and regional planning (2003:76). Knowledge must be acquired through multiple methods, from multiple stakeholders. She puts forward i.e. ‘knowing through dialogue’, ‘knowing from experience’, ‘learning from local knowledge’ and ‘learning by doing’. Communicative planning has also been put forward as a method in managing cultural conflict over land and buildings. However this requires that some actors can work as mediators in cross-cultural communication. (ibid 76ff, 152). Turning back towards the field of environmental management, Reed’s literature review from 2008 on the subject concludes there is evidence it can enhance the quality of environmental decisions. He however points out participation need to be considered early in a process and it needs to “be underpinned by a philosophy that emphasises empowerment, equity, trust and learning”. (2008:2426)

4.4 Territorialisation and spatial production
Physically the establishment of a BR concerns drawing up borders for the three different required zones; core areas, buffer zones and transition zones. The level of restriction on land-use is varying; however the core areas must be protected by legislative force. For all zones there should be a provision or policy on activities and land use (Criteria 5; 7a;b, Table 3). In practice, this means imposing regulations on a local population that, obviously, was there prior to the establishment of the reserve. (Though as mentioned in the case of BR’s, parts of the area was often under other regulation prior to the BR designation, i.e. NP, especially so-called first generation BR’s established prior to the Seville Strategy 1996). The establishment of a BR is always a state-led activity (UNESCO, 1996:17). Throughout the history of nature conservation the establishment of parks and NRs have very often been followed by conflicts over right to land use (Roth, 2008:374; Neumann, 1998:2). In many cases, especially in a colonial and post-colonial context, the establishment has also had a negative effect on the relationship between local people and the authorities as it often impaired living conditions for the local population (Ramutsindela, 2005:51).

Studies within human geography that investigate the consequences of nature conservation in relation to societal issues fall under the umbrella of political ecology. This field of research attempts to cover the relationship between environment and political, economic and social factors. (Gregory, 2009:545) In an article from 2014 Holmes argues that territorialisation is a “useful lens for understanding protected areas” (2014:1). Doreen Massey discusses the production of space and place and argues it is intertwined with political and social power (Massey, 2008:120). The establishment of protected areas is a creation of a new spatial unit, which is assigned new political and social meaning, with the aim of an increased control over this space. In an article from 2008 Roth discusses territoriality and the spatial reorganisation that occurs, exemplifying with the establishment of Mae Tho NP in Thailand. She views the park-people conflict through spatiality, and argues it is not a process where state space deletes local space. Rather it is a continued process of state and local space
production, where state space attempts to replace local space. She views local space as complex, with overlapping and flexible boundaries of use and tenure. State space is described as abstract, enforcing strict boundaries of conservation and use. Abstract space is also “ideally suited, and thus consistently employed, for the control of people and territory” (ibid, 375). Even though the process should be seen as a negotiation of space, especially in the case of Mae Tho, state space was created on the expense of local space. This led to an increased resistance to the park, and less cooperation between the managing authority and local communities. (Roth, 2008) Holmes describes the process of protected area territorialisation as a political process serving certain social, political or economic ends. He points out that states may use the creation of a protected area as a means of extending control in remote or inaccessible areas, and for geostrategic reasons. As described by Roth, there is a negotiation of spatiality or meaning, where “the state and local people each try to shape the protected area’s boundaries, rules, and meanings” (Holmes, 2014:3). Holmes however points out this negotiation does not occur on equal terms. Interestingly Holmes does not discuss the rationale of ecological conservation behind the establishment of protected areas. Possibly he considers that goes without saying. It should however be pointed out that in the case of BR’s, the area must be of significant ecological value (Criteria 1,2, Table 3).

Roth’s and Holmes’ discussion on space production relates to Blomley’s theories on legal geography. In “Landscapes of property” (1998) he highlights legal practices and discourses as important determinants in the production of space. In particular property is vital in shaping spatial identity and creating political and social meaning. Blomley brings forward the meanings and rights attached to property in local struggles over a particular space. A struggle over gentrification in an area in Cincinnati described by John Davis is brought forward as an example. In that case, the “community” was created from pro-gentrification interests to renovate local heritage buildings, were the threat was low-income residents that appeared not to value these heritage buildings as much. Quoting John Davis, Blomley writes “The built environment . . . presents an opportunity to preserve the last remnants of a social community” (Blomley, 1998:571). Certain individuals, groups or organisations create meaning to a property, in order to fulfil certain objectives. Blomley consequently underline that the representations of space is essential in any struggle over property (ibid, 572). Another historical example is the political struggle over landscape between colonial governments and local population where colonial authorities described the landscape as empty and open for seizing. To the indigenous population however, the landscape represented the resources they need in order to uphold their livelihood (Neumann, 1998:9; Pratt, 1992:60).

4.5 The Israeli context
Both the relatively short history of Israel and the long history of the Jewish are very much shaped by struggles over place and territory. As said by Oscar Abu Razek, Director of Israel Ministry of Interior at the approval of Masterplan 35 for development and open space in 2005:

“We’ve all grown up on the ethos of war over land and for years that war involved everyone - Jews, Arabs, developers and preservationists, villages and cities. The results of that war can be seen on the ground.” (Orenstein & Hamburg, 2010:984)
As discussed under 2.6 land use policy has played an important role in Israeli history, used as means to achieving political objectives and increase control of territory (Newman, 1989; Yiftachel & Segal, 2010:481). According to Forman (2006) Israel is a pronounced example of how a national government dealing with internal inter-ethnic conflict makes use of its legal advantages to achieve socio-spatial transformation. The main method was by increasing state landholdings (often at the expense of Muslim Arab landholdings) where new Jewish settlements where established. This process often went through the courtroom, and Forman argues the Israeli government “was effective in transforming its litigatory advantages into spatial advantages” (ibid, 813). However the government’s aggressive settlement policy have led to some repercussions; in some cases settlement projects led to a worsening conflict and an increase in anti-government mobilisation among minorities (ibid; Newman, 1989:225).

In an article from 2010 Yiftachel and Segal discuss the role of space, place and territory in the conflict between the Israeli state and minorities within Israel’s borders, with special regard to Druze communities in Beit Jann in the Galilee. In this article Israel is described as a democratising settler state. By excluding minorities from state-building identity projects a structural condition of conflict is created. This had led to competing aspirations of fortifying cultural identity and territorialisation (i.e. among the Druze communities), putting pressure on the Israeli government “from below” (ibid, 481). The authors claim this conflict is probable to weaken the state in a long-term perspective, in contradiction to the original objective to strengthen Israeli state identity and authority (ibid, 478). Another dimension was added to the conflict over territory in Israel when the Israeli parliament passed the Law of NPs 1963. With reference to Holmes’ (2014) discussion, the establishment of a protected area is an act of territorialisation imposing an increased level of state control over land use. According to Yiftachel and Segal the Druze called the NP “the choking ring”, used as a means of reducing livelihood of the Druze (2014:494).

Orenstein & Hamburg point out there are culturally determined differences in the view on environmental issues, and environmental planning has become an additional dimension in the conflict between the Jewish majority and ethnic minorities in Israel (2009:988). In Israel discourse has evolved around the concept of open space, where open space is defined as landscape “free of construction and development” (Tal, 2008:120). Notably this definition includes NRs, forest and agriculture. While the establishment of protected areas often evolve around wildlife and biodiversity, the environmental movement in Israel has been characterised by discourse on open space from the beginning. During a speech in parliament 1962 Smilansky claimed, “A land where winds cannot blow unobstructed - will be a hotel, not a homeland.” (ibid, 125) Prime Minister Ben Gurion was clearly inspired and supported the proposal for legislation of protected areas. Parallel to the formation of a stronger legal framework for environmental protection, the Ministry of Environment in Israel was eventually established 1988, and the 1990’s became a “heyday for environmental policy” in Israel as the first draft for a comprehensive environmental planning policy was made (Orenstein & Hamburg, 2009:987). A raised awareness of environmental issues has occurred parallel to, and partly in response to, a dramatic increase of population in Israel (Tal, 2008:121ff). Towards the end of the 20th century ideas on the preservation of open space gave increasingly heavy imprint on national land use policies in Israel. Orenstein & Hamburg (2009) argue this has led to a clash of planning paradigms in
Israel. On the one hand there is the environmental approach promoting open space preservation, by counteracting urban sprawl and inefficient use of land resources. On the other hand there is the political-demographic paradigm, which concerns the strategic distribution of population as a means of dealing with internal political conflict. The authors conclude that the political-demographic paradigm continued to influence policy priorities during the end of the 1990’s and beginning of 21st century. As an example they bring forward settlement development in the Negev region, where ethnic competition over land led to low-density settlement, compromising environmental planning objectives. There is however a shift in land use planning paradigm underway, and the outcomes of this shift are yet to be determined. (Orenstein & Hamburg, 2009) Andrea Nightingale refers to these types of state actions to manage the environment and environmental issues as the formation of socio-environmental states, emphasising that the act of governing the environment or natural resources is a moment of state reproduction. (Nightingale, 2014)

Figure 11. The view from the INPA offices in the CBR, early morning on April 4th. Haifa suburbs in the background. Photo by author.
5. A case study of Mount Carmel

In this section the findings and results from the empirical work conducted for this thesis is presented. I begin with the rationales behind the BR designation and some essential, underlying aspects to the designation’s efficacy, followed by findings related to the three research questions in corresponding order.

5.1 Objectives and rationales behind the BR designation

In order to identify the expected changes that may have occurred on the local level as a result of the BR designation, I wanted to understand the rationales behind why Mount Carmel became a BR. Almost immediately after my arrival I learned that the BR concept was not an integral element in the management of the BR (MI10, informal conversation). This was confirmed continuously by all interviewees at the INPA. When asked about the objectives of the BR, there were many vague answers concerning conformance to these (MI4; MI6; MI7). However the picture eventually became clearer concerning the rationales behind the BR application to UNESCO. The primary motive appears to have been the two large forest fires in 1986 and 1989. For decades the JNF had undertaken the project of reforestersing Israel, a project whose message became well rooted in the public mind in Israel. It was therefore perceived as “very traumatic for the public” (UI2) when these two fires burnt large parts of the forest in Mount Carmel. These events hence sparked a strong will to further protect the area. (UI2) According to MI10 and students and researchers participating in the meeting at Technion University, the BR application was mostly the initiative of one man, employed at the INPA. This employee had personal connections with actors involved in MAB in Germany. Designating Mount Carmel a BR was seen a possibility to improve the odds of preventing fire and protecting the landscape and people in the area (UI2).

During the field trip in Israel I acquired the original application for the CBR which was sent in to MAB in 1994. Management for fire prevention is there brought forward as an example of relevant management practices. In this document “Major purposes and rationales” are required for designating the area a BR. In this section the many unique ecological and cultural characteristics of Mount Carmel are presented as motivation. Concerning the future development role, the CBR is to carefully plan a sustainable development model for conservation and balanced tourism, “with the involvement of the local people” (MAB document, 1994:3). Regarding a future logistic role the CBR is to coordinate between conservation and regional planning authorities and local communities, and to coordinate research and monitoring in the CBR. (MAB document, 1994).

The objectives formulated in the application are closely related to the research questions, and will be discussed further under 5.3 and 5.4. However it should be pointed out that those objectives are not considered very present in every-day management in the CBR. During a discussion on the CBR objectives an interviewee said “…they were written and nobody ever looked at them” (UI2). Other interviewees from INPA give very vague responses concerning how the objectives affect their jobs. Many sources at INPA point out that not much changed when the area became a BR (LI2; MI2). Two of the interviewees claim there are some initiatives in the CBR that are “biospheric”, but not in the official way and according to BR model structure. As
employees at the INPA, they are all familiar with the BR designation, but as expressed by MI4: “The Biosphere of the Carmel…if you ask me, it’s nothing that people think about.” Numerous interviewees pointed out that the CBR is not managed like a BR (UI1; UI2; MI7; MI4; MI10 informally).

A number of interviewees suggest that the BR designation is pretty much unknown to the local population (UI1; LI2; MI6; MI8). One interviewee mentions a study indicating that the majority of the local population is unfamiliar with concept BR. “…they went to the supermarket and asked people, and most of the people don’t know that they live in a BR” (UI1). Another crucial aspect that soon came to the surface during interviews is the deep divide between the Druze villages Daliyat Al-Karmel and Ussefyia and the INPA, along with other governmental organisations. Some conflict was indicated in a report sent to the MAB programme in December 2013 (Nemtsov, 2013), which was received a month before my departure to Israel. Expecting a conflict between city and nature, between population pressure and conservation, I soon learned differently. The conflict between the Druze and Israeli government institutions is one of religion and culture, of human rights, and almost above all – about land.

Another crucial aspect concerning the CBR management is the CBR zoning borders (core, buffer and transition zones). There was occasionally some confusion when I asked questions concerning BR buffer and transition zones, and very few of the employees at the INPA used this terminology. Mostly during the interviews employees rather referred to the areas as NP or NR. There were some interviewees who claimed that NRs were the core areas, and that NP was buffer zones. Eventually I however realised that the borders of the BR zones, NP and NRs were not consistent. The differences are shown in figure 12.

Figure 12. Differences between CBR core and buffer zones and NP/NR borders. Map by author.
Only areas classified as NP or NR are under INPA management. Some interviewees pointed out this was problematic, they have no jurisdiction beyond NR and NP borders. The BR does not have any legislative status (UI2). An INPA employee stated that NRs and NPs are “...not a problem. The problem is BR.” (MI2) In addition there is another managing authority in the CBR: the JNF. The map in Figure 13 outlines the borders for Carmel JNF forest, areas which are under the jurisdiction and management of the JNF. This map is based on a map image acquired from the JNF; note that it only covers part of the CBR area.

As mentioned previously in this thesis the focus will not go into depth how the BR designation affected JNF managed areas. However when discussing management practices with actors at the INPA, it became crucial to understand which geographical areas they were referring to when discussing management. JNF forest areas are not managed by the INPA. Even though relations between the INPA and JNF are improved, there is a lot of friction and disagreement in management issues between the two organisations (MI4; UI1; MI10 informal conversation).

5.2 Settlement development in the CBR

One of the objectives with this study has been to investigate how the establishment of the CBR has affected settlement development. In an initial stage this question was explored through satellite imagery classification and latter during the field study through interviews, mapping and observations. The results are presented below in the order they were conducted.

Already prior to the work started with GIS analysis, I believed there had been some increase of settlements in the CBR. It was possible to distinguish some expansions of the villages of Ussefiya and Daliyat Al-Karmel on the LANDSAT images (see Figure 9). According to my satellite imagery classification developed areas increased with as much as 68.6 per cent between 1992 and 2013 (Table 4). A significant proportion of the increase occurred in the fringes of existing development, especially around the two Druze villages. (I have merged the developed areas of the villages, as the borders between the villages are disputed). Between 1992 and 2013 developed areas in Ussefiya and Daliyat Al-Karmel increased by 118 per cent (36 per cent in remaining areas of the processing area). The spatial distribution of the increase in developed areas is shown in Figure 14.
Figure 14. Map by author.

Table 4. Increase of developed areas within the processing area. Table by author.
According to these results new developed areas expanded into CBR buffer zones surrounding the villages. There are a few areas which reverted to non-developed areas, at least some of these are abandoned quarries (MI1). Through overlay analysis in ArcMap I found that 11.7 per cent of the developed areas that constituted Ussefiya and Daliyat Al-Karmel in 1992 were in the buffer zone. In 2013 this number was 38.2 per cent, an increase by 372 hectares. This number however concerns the borders of the BR zones. As discussed earlier, the BR concept is rather unfamiliar to the local community. These expansions may neither be any of INPA’s concern, as long as these new houses are not built within NP or NR borders. During interviews it was however made clear by some of the employees at INPA that a lot of houses are built in formally protected areas as well. During field trips in the BR I was shown several houses built on NP land. Through further overlay analysis I found that some 125 hectares of developed land was located in the NP or NR surrounding Ussefiya and Daliyat Al-Karmel. This number has been increasing steadily since 1992 (21 hectares), however to much less extent than in CBR buffer areas (table 5.) According to these results, there has also been a more rapid increase of illegal buildings in NP/NR areas since 2007. During interviews I learned that there was outburst in the conflict between the Druze and the INPA in 2007, when new areas near the villages were claimed as NP. One employee received death threats and was eventually placed under police protection. (MI2; MI6; MI9)

Table 5. Numbers based on Intersect analysis in ArcMap. Table by author.

This expansion of developed areas around the Druze villages led to a lot of discussions during interviews. The high pace in settlement expansion is confirmed by several sources (MI2, MI3, GI1). Most activity occur at night, and during a field trip a source claimed that there is at least one new building each morning. This was at least true at this point, as the rangers found a new illegal building along a scenic road in the NR during the trip (see image on the front page of the thesis). During a meeting at the
Technion I learned that the housing development in Ussefiya and Daliyat Al-Karmel is practically unregulated (Technion, 2014-03-31). Ussefiya has a Master plan from 1978 that no longer apply, and Daliyat Al-Karmel allegedly doesn’t have one. Hence it is not only settlement expansions into NP or NR areas that are illegal, all new buildings in these villages are illegal. (Except from rare cases where people were provided land and permission to build by the government, mainly to a few soldiers who served the army (LI2; MI8)).

Other illegal buildings outside NP and NR areas are a case for the Ministry of Interior. However several interviewees say that nothing is done about these buildings, the government turns a blind eye (GI1; MI3; MI9; LI2). During a less formal field trip I learned that the Ministry of Interior made a raid towards some illegal housing a few years back. This confrontation got violent and officials from the Ministry of Interior refused to make any further move without the enforcement of Police Special Forces. Same interviewee later explained that there is a strong connection between the Druze, both within and across national borders. As an example civil unrest augmented when war broke out in Syria. (MI8) This is confirmed by another INPA employee: “...if something happens in Beit Jann or Horfesh ...a small thing, there is a instruction not to get in the villages with our cars”. (MI6)

A government employee working with the new Master plan for Ussefiya, describes the case of Ussefiya and Daliyat Al-Karmel as “a very, very, very complicated case” (GI1). The new Master plan is not yet approved; the aspiration is to have it admitted within the two coming years (GI1; LI1). Daliyat Al-Karmel has a Master plan, approximately fifteen years old, but the local council refuse to approve of it because they want more land. However the new mayor of Daliyat Al-Karmel has expressed an interest in a new Master plan. During this interview I learned that there is no lack of areas to build on within the current borders of the villages. On two occasion plots of former NP land was also given the villages, and with the new Ussefiya Master plan further land will be assigned the municipality. If the plan goes through, there should be sufficient land within the blue border of Ussefiya for the next 80 years. And this estimation is based on a plan where the urban structure is “more or less” the same as today. (GI1)

During practically all interviews landownership was brought forward as the main issue. The majority of the land within the villages is private. Two interviewees pointed out that a few families own these private lands while the majority of the people in the village don’t own any land (GI1; MI3). In addition approximately 30 per cent of NP and NR areas are privately owned. Most of the new illegal houses built in NP an NR are built on private land. (see Figure 15) (MI1; MI2; LI2) Druze citizens bought this land, but they are not allowed to build on it. The frustration is reinforced by a lack of housing, leading to that many are forced to stay with their parents (LI1; LI2). Leaving the village is not an option; the Druze strong connection to the village and the land is confirmed by several sources (LI2; GI1; MI8). This leads to illegal construction, which years later eventually lead to a legal process, and probably a fine (LI2; UI1). Many of these illegal houses don’t have electricity, sewage or even proper roads (LI1, LI2, MI9).
Several interviewees point out that the Druze building new houses is a way for them to reclaim the land (MI3; MI6; GI1). Some sources clarify this as action organised by political and religious leaders (MI8). Interviewee GI1 point out that the regional committee refused to accept the new Master plan for Ussefiya until a number of houses located in protected areas were incorporated as part of the village, moving the border. While on a field trip with INPA employees I was informed that the village border is moved step by step. A while back more areas were given by the INPA so that some of the illegal buildings officially became a part of the Druze village. Two days later there was a new building, beyond the new border.

There are some accounts for that some people question the rationales behind the established protected areas. Several sources point out that for the Druze, the establishment of the NP and NR surrounding the villages is not about protecting the environment. One interviewee expresses the “general feeling” among the Druze: “And also, we are Druze here, not Jewish . . . This is why they try to take the land.” (L11) Another interviewee further illuminates the political dimension of the problem: “…I think they don’t feel safe in this country. They don’t feel the government will take care of them and build them places to live”. (GI1)

5.3 Stakeholder management
The second research question concerns how the managing authority in the CBR is working with stakeholder management. This question refers to Objective II.1 in the Statutory Framework for BR’s, to “secure the support and involvement of the local people” (UNESCO, 1996:7). A scrutiny of the formulated objectives in the original application indicates an ambition to comply with these objectives. As previously mentioned (5.1) planning was to be done with the involvement of the local population.

Main findings on this subject are that there has not been enough involvement of the local population in management and decision-making processes. All of the interviewees point out that the managing authority should put more effort into improving relations with the local people. And the most common response as to why the local population has not been much involved is that the Carmel is complicated. In
general questions concerning the involvement of the community gained a lot of attention during the majority of the interviews. The majority of the employees at INPA engagement in these issues, perhaps especially those working on a more practical level with the management. “I think we should be realistic. If you don’t connect to the locals it will be very hard. We can go with the law enforcement, and you know...by force, but it won’t help.” (MI6) During the interviews it was also made clear that the local population was not involved the processes of designating the Carmel a BR (UI1; MI2; MI3).

Some interviewees make clear the BR designation is not really the issue or source of conflict; neither did it become the solution as so little changed with it (UI2; MI2). The conflict between the Druze population and the INPA mainly concerns the NP and NR borders. There has been some additional land assigned NP or NR status since 1970, but not coincident to the BR designation. It has however been difficult to separate discussions from the BR from the discussion in NP and NR areas. “They [the local population] say ‘You come, you put up your borders, and you say this is now a national park. You say this is yours? Try to do a BR? Why did you come just now?’” (MI9).

Several times during informal discussions INPA employees describe the relationship with some members of the Druze villages as a game of cat and mouse. Many of them describe experiences of rather hostile situations during their work in the CBR. “We’re in contact daily. Most of the time, it’s not for the good.” (MI8) Some of them have been attacked, and one employee received death threats and was under police protection for a while (MI2; MI8; MI9). Acts of retaliation are also common. A while back INPA rangers caught a man illegally cutting trees within the protected area. A couple of days later they found that others had cut down thirty old oaks in a part of the NR as an act of revenge against the INPA (MI6; MI8).

![Figure 16. Oaks cut down in an NR area and left to rot. Photo by author.](image-url)
A recurring theme during the interviews is the lack of trust between the local population and the authorities. “There’s no trust . . . There is no trust with all the authorities or with the local council.” (LI1) There are also some interviewees who point out how politics counteract and hampers collaboration between the INPA and the local councils (MI6; MI8).

“I don’t think the mayors would like to make any kind of meeting with us because it would be…it will seem like they are cooperating with us.” (MI8)

There were furthermore reactions during and right after the 2010 fire in the public, which further infected relations with the Druze community on Mount Carmel. “...you could feel that people blamed the Druze, that they had set the fire”. (UI1) Initially it was believed the fire started with arson, being an act of terrorism (Israel National News, 2010-12-02). Two young brothers, 14 and 16 years old, from Ussefiya were first arrested for arson. They were however soon released. Later the 14 year old admitted to causing the fire, but by accident (Haaretz, 2010-12-06). The police confirmed that the fire was probably a result of unintentional negligence (ibid).

Numerous interviewees point out that one of the major shortcomings in the implementation of the BR model in Mount Carmel, was that it was conducted through a top-down structure (MI3; UI2). Another source calls it a top-to-middle structure; it never made it all the way down (MI1). Two of these sources put forward the example of Ramot Menashe BR in Israel, just south of the CBR. This BR is described as a well-functioning BR with a bottom-up management structure. One of the main obstacles in achieving higher levels of participation is according to several interviewees the complex composition of actors within the CBR. Protected zones in the CBR are as already mentioned managed by two different actors. In addition the CBR consist of nine different municipalities that manage the rest of the land within CBR borders. Furthermore the population in the CBR is very diverse, consisting of Druze, Jews, Arabs and Christians, living in larger villages, kibbutzim and moshavim. (MI1; MI3)

According to the criteria for BR’s, a BR should provide “organisational arrangements” that enable the stakeholders to participate, sometimes referred to as platforms (Schultz & Lundholm, 2010:657) through which there can be a dialogue between the stakeholders in the BR. There are currently no such organised, recurring meetings between the different actors in the CBR (MI1; MI2; MI3). Neither is there a BR committee (MI1; MI3; MI4). When asking how often there are meetings with representatives from the city councils and government organisations, one interviewee replies: “Oh, it’s a lot. But not under the topic of the BR.” (MI3) After the 2010 fire there is increased collaboration with other parts of the government, especially during the last year. When asked, one interviewee responds “From the government, yes. Sadly not with the villages.” (MI8)

Other interviewees point out that management issues are handled at the INPA offices (MI6; MI7). “The management is here [INPA office in the CBR], we are doing it here. (MI4) Another interviewee sharply criticise the INPA for not communicating planned actions for fire prevention (a programme initiated after the 2010 fire) to the rest of the community. “...again they change the face of Mount Carmel and nobody involved the citizens . . . Again, it’s like two worlds.” (UI1)
During an informal conversation I learned there are some in the INPA organisation who are very hesitant to the BR model, as it may impair the INPA’s current authority in management matters. This is confirmed during interviews with some of the INPA employees. According to one source nobody is really sure if they want to keep it, however leaving it open for improvement if they can make the local people understand (MI7). Other interviewees are more direct concerning whether it should be a BR: “We don’t need it. The people need it”. (MI2) “It’s not a good model at all. . . The wrong area at the wrong time.” (MI9). Another interviewee argues the public should not be involved in all matters: “In nature, nature-saving; the people don’t have a clue. I don’t think we should include them, even if it is the locals. Because we are the professionals, and we know what to do with it.” (MI6)

There are however a number of initiatives brought forward as examples of how the INPA is trying to work with the local population. In 2005 two of the interviewees started collaborating with local citizens on woodcutting. There is a lot of woodcutting required in the CBR, and since 2005 the INPA only use local contractors (MI4; MI2; MI3; MI7). These contractors pay a symbolic price for the wood and resell it, while the INPA saves money on contracting (MI7). It was initiated in a rather informal way. “…he managed to come and find the people who actually come and destroy and damage the forest. He stopped him and said ‘Listen, let’s work together . . . we move it to the other side and you work with me.’” (MI9) Parallel to the woodcutting project, the local population is welcome to come and collect the leftovers from the construction work, for firewood. It is described as very popular event, “like a big festival” (MI7).

There is also an education programme, which was written a few months ago, with the aim to provide education to the local community. (MI1, MI5) This programme is to reinforce a previous educational programme. These programmes will be discussed more thoroughly in section 5.4. Finally there is a new grazing programme, where the INPA work towards increased collaboration with local farmers. The aim is to increase grazing in the CBR, which may endorse biodiversity and prevent fire. (MI1)

Even though my findings paint a gloomy picture of the relationship between different actors in the CBR there are indications that things are changing. Many interviewees point out that all that is needed is time (MI7; MI8; UI1; GI1). There is among the
many sources a belief in the coming generations, and the importance of education is emphasised. There are also plenty of examples on how personal relations lead to collaborations for the good of the CBR. (MI4; MI8; LI1) Especially one actor at the city council in Ussefiya is seen as a source of hope for the future; “a beacon” (MI8). This actor has taken on the role of being communicator and mediator between the INPA and the local council. A passion for the environment has led him to arrange excursions for other villagers in the weekends. Explaining that a large part of the Druze community is unfamiliar with the natural values in Mount Carmel he provides an opportunity to both discover and learn about the landscape. “Every Saturday I choose a subject, and I explain about . . . our responsibility on the mountain” (LI1).

There is also a will to change the organisational structure of the management of the BR within the near future. “…we’re trying to do some sort of round table with all the stakeholders. We’ve been . . . going to the different mayors in the area, trying to get them to come. There’s not a set date yet. But most of them are into it.” (MI1) Perhaps most importantly, plenty of the interviewees express an understanding for the other actors:

“Maybe they have other views of what reality is. I am looking at everything through my eyes, and I am a ranger . . . Could be that the reality is totally different and I don’t know about it”. (MI8)

Besides from interviewing two representatives from the Druze village Ussefiya, I made some further attempts to get the Druze point of view. During my observations in the villages I had a couple of informal conversations. It proved difficult to get the Druze point of view, as almost no one I met spoke English. Of the less successful conversations I had, one man became very irritated when I mentioned “the park” and snapped at me, another man just snorted and waved at me. In the end I however had conversations with two young girls. The first girl spoke limited English, but loved her village and said she thought it was good for the village that there were so many tourists visiting. The second girl spoke excellent English and showed a high level of interest and insight. She explained it was not only about the land. The real problem is that the Druze are not treated as real citizens. They die for Israel in the army, but they are not treated as equals. I mentioned some of indications of alleviation in the conflict that I had found; that it seemed like people from the villages and the INPA had started talking. She threw out her hands in a gesture and responded clear enough:

“This is Israel. People don’t talk, they take.”
5.4 Research and education
The third research question can be divided into some different parts. It raises the issue on which initiatives in education and research the BR designation has led to. In addition it has been investigated how knowledge is shared between different stakeholders.

Processes of learning and knowledge exchange within the CBR are closely related to the issue of stakeholder management. As discussed under 5.3 there is no formal organisational structure that enables the different stakeholders to meet and exchange knowledge and experiences under the umbrella of the BR structure. All such knowledge exchange appears to occur on the basis of personal relations (UI1; MI4; LI1). There is for example one interviewee who is a full-time employee but conducts some research at the university in the spare time. It is not part of the job, but it potentially creates a link between the two organisations.

As mentioned there is however an increased coordination between the INPA and other governmental organisations. After the 2010 fire there was a huge investment (50 million shekels (MI3)) from the government on a programme for fire-prevention. The money has mainly been put into management; approximately two million shekel went to research (UI1; MI4). Note that this project is not a BR initiative. It is a governmental programme and it comprises of a larger geographical region including areas in northern Israel (MI4).

“…before that nobody really thought about what fire would do . . . they talk about it at the university what fire is going to do, what are the damages, forest rehabilitation. But before this fire nobody was really talking about to prevent the next fire.” (MI4)

The fire prevention programme is hence not a result of the BR designation, but the government’s response on the tragic 2010 fire. It can however still be considered of relevance, as it has led to increased collaboration and knowledge exchange between the INPA and other governmental organisations.

Figure 18. Rests of old burnt trees and seedlings emerging. Photo by author.

This large-scale programme was preceded by another government programme after the fire in 1989. Then there was a lot of investment in research on fire prevention.
Two interviewees state this led to an immense amount of reports (UI1; MI4). This was approximately during the same time as the application to the MAB programme was made. Eventually a large number of these reports were collected into a book. And then allegedly, nothing happened. “…somebody took this report, put it in the shelf and nobody did anything . . . we feel that we made research, we published papers, we published reports and nobody used it”. (UI1) There were concerns regarding fire prevention in the field as well, and an INPA employee urged that something had to be done. Nothing happened however, probably due to lack of resources. (MI2; MI6; UI1)

Several interviewees assert there is a lot of research conducted within the CBR (UI1; UI2; LI2;. This research is however not coordinated by the CBR, but mostly initiated by the individual researcher. “…we are doing research but much of our research is independent of the INPA or the government. People get money from different agencies for study.” (UI1) Another interviewee points out this is an issue, as a scientific committee should accompany a BR. (UI2)

There has recently been an intention to tighten the relationship between academic institutions and the CBR. In 2010 the Mount Carmel Research Centre was established at Haifa University, with the aim to focus all relevant research under one institute (University of Haifa, 2010). The Mount Carmel Research Centre was established in cooperation between the INPA and Haifa University. One interviewee explains:

“The whole idea was that the INPA would pay a certain amount of money each year for study, but they have replaced the management and everything in INPA. So now, maybe on paper it’s still cooperation, but they don’t give any money.” (UI1)

Another interviewee explains that there were some expectations after the 2010 fire, that a scientific committee would be established: “…signs, a feeling that something was going to happen. But then it kind of disappeared. It’s not that I don’t want to be involved. It’s just that nothing happened and everybody is doing his own things and….I’m involved in so many projects so I wasn’t the one to lead.” (UI2)

Several sources emphasise there is plenty of interest among researchers at academic institutions to conduct research within a wide spectrum of disciplines in the CBR, which is confirmed by the independent research which is conducted anyway. (UI1; UI2; MI4; Technion, 2014-03-31) As an example, one interviewee is at the moment part of a small-scale research project on green business management. It is practically oriented and directed to young people in the Druze villages. There is also an incentive of CBR research at the Faculty of Planning and Architecture at Technion Israel Institute of Technology. During the meeting at Technion I met some of those involved, Daniel Orenstein and his co-researchers, a group representing a rather wide scope of research related to the CBR. This project is in an early stage and no external funding has been acquired yet. There are currently two master students writing their master thesis on the subject BR’s in Israel, of which one is to be turned into a PhD thesis. This project has no relation to the INPA, neither to the Mount Carmel Research Centre. (Technion, 2014-03-31; Orenstein, 2014-05-26 mail correspondence)

There appears to be some research activities within the INPA, coordinated by the INPA research department in Jerusalem. An example is the fire prevention project, and i.e. monitoring and the reintroduction of species. One interviewee says that “The
research department at INPA is not making research as in the university...rather looking at research. It’s more practic.” (MI4) It should be pointed out that the CBR seems to fulfil its conservation role quite well, two interviewees working as ecologists state that the CBR is doing quite well in terms of achieving ecological sustainability. (MI1; MI3)

On the subject on education, there have been some INPA initiatives to provide education on environmental issues to the public. There is a new education programme developed especially in relation to the CBR. It is very new, not yet implemented, and was written a couple of months ago. A substantial sum of money was invested in the programme. (MI1; MI3; MI5) According to an interviewee enables them to do bigger things and reach larger parts of the community. Prior to this new programme there has been a more small-scale educational programme in elementary schools for approximately ten years (MI1; MI5). A group of employees at INPA have been collaborating with four elementary schools in the area, where they have educational activities with the kids in fourth grade. This was not unique for the CBR, the INPA has such programmes with all national parks in Israel (MI6; MI10 informal conservation). There have been some positive outcomes out of this programme:

“…through the kids we see a big change with the fishermen. When they catch a turtle, they know who to call and they know how to save them.” (MI5)

The same interviewee explains that they were previously very restricted: “Until now we were very limited. . . . If you talk about money, it was a big issue”. An unfortunate consequence has been that some schools have not been able to afford participating in these activities. (MI5)

Another finding in relation to knowledge and information exchange is that there seems to be limited communication between the different parts of the INPA organisation. During an interview it became clear that two out of three of the participating employees at the INPA had no idea that there is a Mount Carmel Research Centre (MI6; MI9). Again knowledge exchange often appears to occur through informal channels. An example is the new education project, which an interviewee working at forestry division of the INPA accidently knew of:

“But we don’t really know what they do. They just...they told me about it...I...accidently. I talked to them and they told me the kind of things that they do.” (MI7)
6. Discussion

According to UNESCO, BR’s are to serve as “learning laboratories for sustainable development” (2014:b) by implementing the BR management model. Which changes did the BR designation bring on in the case of the CBR? In the previous section the empirical findings were presented, describing the case of Mount Carmel and what happened (and what did not happen) after it was designated a BR. This section analyses the empirical findings in relation to the BR statutory framework and the Israeli context and connects it to the wider research field. Events in the CBR will be linked to theories on territorialisation and the production of space in order to increase understanding of the struggle over land. Subsequently findings related to stakeholder management research and knowledge exchange will be considered in relation to theories on participatory planning practices and sustainable development.

6.1 Claiming the land – on the subject of settlements

One of the themes of this study has been to investigate settlement development within the BR. The results from satellite imagery classification show that there has been a steady increase of developed areas in the CBR. As discussed in section 3.3 there are some implications concerning the use of satellite imagery classification techniques for mapping. The validity of my results was however strengthened through participatory checking in the field, and as shown in the previous section interviewees confirmed the increase. Expansions are mainly found in the fringe areas surrounding the Druze villages. Between 1992 and 2013 developed areas in Ussefiya and Daliyat Al-Karmel increased by 118 per cent. Through the interviews and observations these expansions were also specified to be mainly new settlements.

Figure 19. Illegal settlements pointed out by INPA rangers during field trip. Photo by author.

According to the BR statutory framework settlements should be located in the transition zones of a BR. The results show that settlements have been expanding substantially into the CBR buffer zones surrounding Ussefiya and Daliyat A-Karmel. 38,2 per cent of the developed areas in the villages were located in the buffer zones in 2013. It can hence be concluded that the CBR failed to meet the objectives on securing the ecologically valuable landscape that is found within the buffer zones of the CBR. In the original application from 1994 it is stated that the “buffer areas contain natural forests, planted forests and agriculture, where management and development are limited and can be restricted.” (MAB document, 1994:3) However I had some other interesting findings. According to my results of the satellite data from
1992, already then there were some developed areas in what would in 1996 become CBR buffer zone. Figure 20 shows the distribution of developed areas in buffer and transition zones in 1992 and 2013 respectively; buffer zones in red.

![Figure 20. Developed areas in buffer and transition zones. Map by author.](image)

This indicates that the zoning borders of the CBR were actually not consistent with the goals from the beginning. That is of course with reservation for that there not was some temporary intense type of land use in these areas in 1992, which was gone by 1996. This might be the case for some areas, but it is rather unlikely for areas directly adjacent to the rest of the villages. Either the intent was to reverse these developed areas into some kind of land use intended for buffer zones, or the border was simply not drawn in a good way.

In order for this study to be of relevance in a wider field of research of BR implementation, we need to outline why the settlement development in the Druze villages has expanded into areas classified as more sensitive. According to several interviewees, these expansions are illegal and an expression of political conflict. There is certainly a lot of findings pointing in that direction, but let’s not dismiss other factors just yet. There were also a number of interviewees that emphasised the situation for many Druze is desperate due to lack of housing (LI1; LI2). Prior to my field trip I believed the expansion of developed areas was related to population pressure, as several studies describes an increasing population as one of the main threats to the “open space” in Israel, and to Mount Carmel in particular (Shoshany & Goldschleger, 2002; Green & Vos, 2003; Orenstein & Hamburg, 2009). Unfortunately there is no more recent number on the total population in the CBR than what is presented on the MAB web page (200 000 inhabitants in 1996). However there is population data for the separate villages of Ussefiya and Daliyat Al-Karmel from 1983 until 2012. There is no census data from 1992, but assuming the change was linear then Ussefiya had approximately 7800 inhabitants and Daliyat Al-Karmel had 10900 in 1992. This gives 18700 inhabitants in the Druze villages in 1992. The total for both villages in 2008 was 25600, and 27300 in 2012. Assuming the change was linear, this gives 27725 inhabitants in 2013. According to these numbers, then
The population increased with 48 per cent between 1992 and 2013. The expansion of developed areas this period was 118 per cent. Given that a similar urban structure has been maintained (which was claimed by GI1), then only a part of the expansion may be explained by a population increase.

A governmental official involved with the Master plan of Ussefiya explained there are plenty of open areas left to build on inside the village. The notion that with the new borders in the Ussefiya Master plan, there should be sufficient areas for urban development for eighty years ahead is almost astonishing. Still the village border keeps expanding outwards, into CBR buffer zones but also into NP and NR areas (table 5). It is impossible to account for the individual motives behind the very large amount of illegal houses that have been built in the fringes of the Druze villages. The sources witnessing of a desperate housing situation for many Druze should not be ignored. It should also be considered that the people who live in these houses often are without necessities such as electricity and proper roads. A crucial aspect in the distribution of the new settlements is landownership. The majority of the land within the borders of the municipalities is privately owned. According to many sources this land is owned by a small fraction of the total population of the villages. It is up to these individual landowners if they want build new houses there or not, and possibly they are not the ones in need. This implies there is a structural inequality in the housing issue in these villages.

There are some sources indicating that the expansions are organised actions, and not only desperate actions by individual people in need of a house. (This information does not contradict that these actions are desperate for some.) When new areas of the park were given to the Druze villages, a new house was rather immediately built further into the park. As put by interviewee GI1 it is not one or two houses that are built beyond the contested blue line, it is entire neighbourhoods. It has also been made clear that the Druze municipalities demand that the illegal buildings across the contested blue line are made part of the village, thus moving the border. It is a complicated process, and many Druze end up in court and have to pay a fine. But to some extent one could still say it has been a successful method. As said by many interviewees, the government will not go tearing down houses and risk a full-scale internal conflict. Hence, step by step, the Druze reclaim the land that they consider the government took from them.

6.2 State control through policy

The discovery that settlements are expressions of political conflict is hardly a revolutionary result when the case study is located in Israel. The act of building new settlements is loaded with meaning in an Israeli context. As described in section 2.6 land use planning policy and the creation of settlement patterns have been used as means for territorial control in Israel for decades. Under very informal circumstances two of the interviewees (on separate occasions) hinted to me that the Druze learned from them; from the best. According to Orenstein and Hamburg the Israeli land use planning policy is slowly undertaking a shift away from the “political-demographic paradigm” (2009:984). Instead an environmental paradigm is acquiring increased influence, promoting open space preservation by counteracting urban sprawl and inefficient use of land resources. Stretching this discussion a bit, one could say these two paradigms are at play in the conflict over the protected areas on Mount Carmel. There are however several complications. One side in this conflict, representatives
from the Druze communities, is acting under informal conditions and illegally. Through establishing settlements they attempt to increase territorial control of their land. The other side, the Israeli government, is trying to implement the national environmental policy with the intent to maintain the natural values in the region. However, by the Druze this is seen as an excuse to impose further governmental control on areas that are not Jewish.

Newman (1989) and Yichtachel & Segal (2010) point out that Israel is a state that imposes different forms of territorial control in order to uphold state sovereignty, especially in peripheral areas. This requires continuous strict forms of territorial control. Yichtachel & Segal goes further; claiming that due to Israel’s ethno-centric policies on land and minority control the Israeli state is fragmenting (2010:37). That is a drastic statement that should not be thrown around casually. Neither has it been the aim for this thesis to evaluate the status of the Israeli state sovereignty. There are however some aspects worth mentioning in relation to Newman and Yichtachel & Segal, and to the situation in Mount Carmel. Due to the top-down declaration of protected areas in this region the relationship with the Druze population has been severely impaired. According to several interviewees there is no trust between the Druze and the authorities. One interviewee even argues they don’t feel safe in Israel. The imposition of NP and NR areas on Druze-owned land has led to a difficult conflict over land. The government is not in complete control of the area; when officials at the Ministry of Interior attempted to enforce law and stop an illegal construction they were attacked and fled. Several interviewees point out that the government avoids enforcing law to deal with the illegal activities in the CBR. In addition it seems that the appropriation of further land to become NP in 2007, an attempt to strengthen control of land use in these areas, may have led to an increase of illegal housing in NP and NR areas. (Table 5)

6.3 The establishment of new protected space
The establishment of a protected area is a formation of a new spatial unit, imposing boundaries where there in some cases have not been any borders before. The establishment of the CBR did impose new borders in this area, but these borders were imposed in an area much shaped by conflict over the old borders that were established in the 1970’s with the NP and NR areas. In addition the BR designation has no legislative status. In order to understand what effect the BR designation has had in Mount Carmel, I believe we need reflect over the effects the establishment of NP and NR areas had. Going deeper into the spatial configuration of political and social power relations may help in understanding the conditions for collaboration between the different stakeholders of the CBR.

Often when protected areas are established in proximity to populated areas a conflict arises. It can be useful to view upon these conflicts as struggles of space, as Massey puts it, “battles over spatialised power” (2008:120). Roth describes the establishment of protected areas as a spatial reorganisation; a negotiating process between local space and state space. However as Holmes points out, such processes are often on unequal terms. State space is abstract, the creation of fixed boundaries, which are imposed on the mosaic of local space. The objectives behind the establishment of protected areas are diverse, but in general linked by an ambition to increase control over territory and natural resources. There are several accounts of conservation gone
wrong, where the authorities put natural resources over human development. The consequences are various, but when it impairs the local population’s livelihood enough it is bound to result in some type of repercussions. According to my findings the establishment of the protected areas however does not seem to have such severe consequences on the ability to make a living. I do not in any way want to disregard that some of the inhabitants in the CBR may be in a very difficult situation. But to the defence of the INPA, they allow low intense land use such as agriculture and in some cases provide livelihood through hiring contractors for the wood cutting project. Still relations between the governmental organisations of Israel and the Druze communities Dalijat Al-Karmel and Ussefiya are severely impaired, and in some aspects beyond state control. This raises the question whether the state underestimated the local population’s attachment to the land; land has a central role in Druze culture. Imposing a new identity defined by the Israeli state on these lands has not been accepted. This imposed state space and its borders are being contested every day through contrasting and sometimes illegal forms. Since the state imposed NP and NR along with an increased state presence in the form of the INPA, this space has gained a new identity. For some people in the Druze community this is far from the intended image of pristine, beautiful, natural landscape intended for recreational activities. (In fact an interviewee pointed out that many of the Druze are unfamiliar with these natural values.) These areas have instead become a symbolic space, an expression of a state’s superior relation to minorities in Israel. For some, this space has become an arena in which discontent towards the government and civil unrest takes expression. This may be through the construction of buildings, structures which provide longevity and demand drastic efforts to eradicate. As Blomley recognised, representations of space are essential in struggles over property (1998:572). The built environment is an opportunity to preserve the social community of the Druze. This space is also used for other demonstrative activities such as illegal logging and hunting.

The establishment of NP and NR areas were top-down governmental initiatives leading to increased governmental control, and some private landowners found themselves with less control of their land. This relationship is characterised by inequality, which led to conflict. These spatial dynamics were constituting when the area was later designated a BR. Even though the CBR comprises a much larger area, this is not much reflected in the every day work for the employees at the managing authority INPA. It mostly evolves around the NP and NR areas. The CBR borders are seen as problematic as they have no legislative status. Neither was the designation of the BR well established among other organisations in the CBR area. Again it was a top-down implementation, but with the difference that these new, imposed borders went by rather unnoticed. Initially in the aim I posed the general question which effects the establishment of the CBR had on a local level. When analysing my findings through a window of spatial production: it seems hardly anything. It led to some expectations of change among some actors, but these did not occur. (At least not as a result of the CBR establishment). However some years later, in 2005, the BR designation had some positive outcomes as it enabled the INPA to only use local contractors for woodcutting (in other national parks all jobs are under public procurement). This led to that this space became an opportunity to make a living, for some at least. This is however a small fraction of the population. To conclude there is no clear definition of the CBR, at least not in the public eye. The lack of promotion of the CBR has led to that the concept appears to be unfamiliar to the majority of the stakeholders in the CBR. How can one then achieve a common goal if there is no
sense of collective identity? One of the challenges ahead is to communicate the BR concept to the different stakeholders. Another major challenge is to resolve the conflict over territory. According to my findings the conflict over the imposed borders of the NP and NR areas is constituent, and impairing the prospect of achieving common goals for the future of the BR.

6.4 Making the case for stakeholder management

In the previous section we have explored the spatial configuration of the CBR, where we have touched upon the organisational structure of the CBR. The implementation was top-down, or as expressed by one interviewee it did not trickle all the way down, rather existing only on a scale between the top and middle. In this section we look more closely at the social configuration of the CBR. According to UNESCO, “biosphere reserves involve local communities and all interested stakeholders in planning and management” (2014:b). The BR management model prescribes a participatory approach in order to foster economic and human development. This approach is strengthened in previous research where stakeholder management has been put forward as a means of dealing with the complex concept of sustainable development (for further reading, see for example Schultz et al, 2011). By involving different actors in representing the different interests in the area, knowledge is gained from different perspectives. This implies a shift in the view of the local population. Instead of being viewed upon as actors that must be regulated, or even threats, they become partners.

According to my findings, this shift has not taken place in the CBR. Some sources point out that the BR designation did neither worsen social relations between stakeholders nor resolve them; rather nothing changed in 1996. As pointed out, the BR was implemented in a context characterised by land issues and social conflict. It has also been repeatedly highlighted that Mount Carmel is especially complicated, as there are so many and such diverse stakeholders in the area. In theory the stakeholder management would be a suitable management model, given there is an organised structure for how such participation takes place. And here we reach one of the key aspects in understanding why the BR designation had such little effect. There is no such organised structure for managing the different interests of stakeholders in the CBR. In fact there is no CBR committee at all, neither is there a manager of the CBR. Some of the stakeholders (the JNF, INPA, ministries and other organisations) meet regularly under other circumstances, but not under the umbrella of the CBR. There is very little coordinated interaction with other stakeholders. There are no meetings where i.e. the different municipalities and the managing organisations meet. Neither is there any formal channel in which other stakeholders can have a saying in management or decision-making. Any such correspondence would potentially occur informally through personal relations.

Personal relations also appear to be the main channel for information and knowledge exchange between the INPA and other organisations and actors. It is hence difficult to measure the extent of such knowledge exchange. This is with the exception of other governmental organisations where coordination has increased, allegedly only in the past year. As a result of the tragic fire in 2010 there is now much more organised cooperation and exchange of both favours and information. Except from the woodcutting project, there is however very little initiative to integrate practices serving socio-economic development into CBR management. As a significant part of
the local population is unfamiliar with the BR designation, they know even less about the possible opportunities that may come with this model. Several sources emphasise the need to inform the public on admitted activities such as eco-business, eco-tourism and low-intense farming.

Returning to the third function of BR’s as learning sites, there are examples of some experimenting activities such as the reintroduction of species in the Hai Bar. There is also the educational programme, which will be discussed further in the next section. There is also plenty of research conducted within the CBR, but not under the umbrella of the CBR. There is however a lack of coordination. There is no organised cooperation between the BR and researchers, any collaboration is based on personal relations, and according to my findings the projects happen on the initiative of the researchers. According to some studies, fulfilling the third BR function is an imperative tool to reach the overarching goal on sustainable development (Coetzer et al, 2014:101; Ishawaran et al, 2008:130). In order to solve complex issues of sustainability there should be targeted inter-disciplinary research and knowledge exchange. According to Schutz and Lundholm, few BR’s have the organisational structure needed in order to fulfil the function as learning sites. This is the case also in the CBR. The fact that there are several academic institutions nearby the CBR is however a resource that should be made use of. According to my findings there is plenty of interest among researchers at the academic institutions of Haifa University and Technion Israel Institute of Technology. This is clearly illustrated by the fact that they conduct research on sustainability issues in the CBR at their own accord. When the Mount Carmel Research Centre was established, there was also a lot of anticipation of increased cooperation among actors at Haifa University. As the management structure changed within INPA not much happened. However there is then already a foundation for cooperation, and a potential platform for knowledge exchange.

To reconnect to the second research question, the CBR is not conforming to BR objectives on involving stakeholders in planning and decision-making. There may be some involvement of some actors, but not in a formal and recurring manner and not under the subject of the BR. To complicate matters further, it seems the local councils of Ussefiya and Daliyat Al-Karmel are not interested in collaborating either. Rather they position themselves against the government out of political reasons. I also had some indication that some actors at the INPA are unwilling to include other stakeholders in decision-making. There is a fear that a participatory management model would compromise their objectives and have adverse effects on ecological values. It is definitely a difficult challenge to convince the different stakeholders in the CBR that they may sit alongside the INPA and establish common goals, especially representatives from the Druze villages. As put by one of the interviewees, there is no trust. And as pointed out by several other sources, it may take time. Again I would however like to forward the issue on a shift in the management structure, reconnecting to the case for communicative planning practices and to theories on participatory planning. Besides from acquiring a strong knowledge base in planning and decision-making, participatory planning is put forward as a means of handling cultural conflict. In order for it to be successful, processes of participation and interaction must be well organised. This is not single-handedly resolved by the provision of a meeting-place where different actors can meet, even though this would be a very important first step. Taking Sandercock’s “epistemology of multiplicity”
into consideration, the managing authority needs to be perceived as open to multiple sources of information. Mediating between the different actors of the CBR would require some cross-cultural communicative skills. This reasoning leads us to the question of who should coordinate such activities in a BR. An initial solution in the case of the CBR would be to introduce an official manager of the BR area. Another important aspect is that this person should not be closely linked to the INPA. The INPA are the professionals in managing the NP and NR areas, but the INPA label is like a red flag to some stakeholders in the CBR. The official CBR should preferably be someone who is perceived as neutral and without preference to the different actors in the CBR.

6.5 A silver lining
As seen in section 5.3 there are however examples of how the INPA is working with the local population, as with local contractors and with the firewood collection project. An important aspect to point out is that these initiatives originated in the field, on the local level. This shows there is some acting space in the INPA organisation, and that the judgement of those in the field is trusted. I believe this to be an important aspect, as it is those in the field who face the real challenges of managing the CBR. The rangers involved with preventing illegal activities face a lot of risks, given that rangers have been attacked and that one ranger was threatened to a point where he received police protection. Even though this may create a lot of anger, this creates an incentive stronger than most to improve the situation. In addition the majority of those I met working in the field showed a high level of insight in the conflict and empathy for the different sides.

According to a number of the interviewees, education is a very important aspect in order to resolve the conflict with the local communities. There have also been some positive outcomes of the small-scale educational programme that has been running for approximately a decade. With the new investment of an education programme specifically for the BR some new windows of opportunity is opened, both to reach a larger part of the population and to inform them about the BR model. Another example of increased interaction with other stakeholders is the new grazing programme. Most importantly, one of the key actors in the CBR described a plan for a new organisational structure within the CBR, a sort of round table with all the stakeholders. This would be a crucial first step in treating the CBR as one unit, for which common goals can be established.

During my field study, mostly during informal conversations, there were many who spoke of a “new generation”. I was told it was mostly the older generation that was fuelling the conflict, those who remember how it was before Mount Carmel was turned into a protected area. There was in general a lot of confidence that time will help resolve the conflict. A very important step is also the fact that there is now a representative from city council with a will to communicate with both sides, an actor who may play a key role in the future. With a shift in the organisational structure towards increased dialogue, there might be potential of alleviating the conflict. This study shows that as of today the CBR does not conform to the BR management model. Even though there are a lot of steps to take in order to do so, there are however indications that things might actually start to change in the Carmel. To return to the conversation I had with the young Druze girl; people might actually be starting to talk to each other.
7. Concluding remarks
UNESCO BR’s are a rather ambitious designation, intended to be learning laboratories for sustainable development where innovative ideas are tested and implemented. This study set out to investigate the effects of the BR implementation in Mount Carmel on a local level. According to my findings the BR designation of Mount Carmel has had very limited effect. The BR concept is practically unknown by many stakeholders within the CBR, and there have been limited attempts to inform the public of the implications of a BR designation. With the new educational programme, written especially for the BR, some improvement may however be at hand. The CBR is hence working with education, and there are also some monitoring and experimental activities. The BR designation has however not led to any new research initiatives, at least not directly, and there is no coordination of research and exchange of scientific knowledge and experiences. There is however a lot of potential given the high level of interest among researchers in the adjacent academic institutions. This requires that a CBR management authority takes its responsibility as a coordinating actor, fulfilling the function of logistic support.

One of the main challenges is to resolve the conflict with the Druze communities, which in the CBR mainly evolves around the right to land. For the past 21 years villages of Ussafiya and Dalit Al-Karmel have been expanding in high pace into areas classified as CBR buffer areas. The conflict is not confined to Mount Carmel but of state-wide magnitude, and concerns civil equity in Israel. The expansions of the Druze villages can be viewed upon as a spatial manifestation of a minority’s discontent over what they consider is structural discrimination. A lot can be done on the local level, but this indicates that a resolution on a higher political level may also be required, beyond the capacities of the CBR management. Another important finding is related to the borders of the CBR. According to the results from satellite imagery classification results, the borders for the different zoning were not consistent with the CBR objectives from the beginning. This suggests a need for revising the zoning borders, especially borders between buffer and transition zones.

Conflicted relations between the different stakeholders of the CBR are clearly impairing the potential for participatory management and decision-making. An important factor is the complex spatial configuration of the CBR in terms of management and landownership. This both complicates coordination in the area and strengthens the case for implementing a communicative planning process to increase management efficiency. According to my findings, the CBR has not involved other stakeholders in planning and decision-making. There is no BR committee, neither is there a manager of the CBR area as one entity. No platform is provided where different stakeholders can discuss matters related to the BR. There is however indications of a shift towards increased dialogue between the different actors in the CBR. Again this requires that a CBR management authority provide the organisational structure, where participatory processes may take place. The issue on the role of a manager has also been brought forward, emphasising the need of an unattached manager guiding a more negotiating and democratic planning process which comprehend the entire CBR area.

An interesting point of departure for further research would be to emanate from the communities of the CBR to identify different perceptions of the CBR, and meanings and ideas in relation to the protected areas. It would also be very interesting to
compare the CBR with Ramot Menashe, according many sources a successful Israeli BR, and to conduct comparative studies with other BR’s in a similar context. Relating this thesis to the wider field of research, this study has shown the weight of taking context and history into account during the establishment of a BR. It also see relates to a discussion within the field of political ecology on the state’s role in the management of the environment, providing an example of how national environmental planning policy meets resistance. The case of the CBR has proven especially difficult as it was implemented in a conflict-ridden context, where land issues where not taken sufficiently into consideration. This has compromised the ability to reach BR objectives. Furthermore this study underlines the need to firmly establish a BR designation among the different stakeholders. In the case of the CBR the implementation was top-down where local stakeholders were excluded from the process. As a result the CBR stayed on an abstract level and, at least until recently, existed merely on paper.

Figure 21. Upper photo: view point near Beit Oren. Left photo below: woman in Ussefiya. Photos taken by author. Right photo below: a vulture in the CBR. Photo acquired from Ben Rosenberg
8. References


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**Internet sources**


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