Chapter 10
Characteristics and Management of Old and Sacred Dangsan Forests in Korea

Jai-Ung Choi and Dong Yeob Kim

Abstract The traditional village forests represent unique cultural landscapes in Korea with histories of more than several hundred years. These forests are known as Bibo Forests (village protector) and Dangsan Forests (sacred place). Although Dangsan Forests have diminished over the years, a considerable number still exist in rural villages. In the Korean peninsula, the Dangsan Forests have at least one of the three elements: Dangsan trees, stone towers, and a shrine. Major Dangsan tree species are *Zelkova serrata, Pinus densiflora, Celtis sinensis,* and *Kalopanax pictus*. A village ancestral ceremony called Dangsan ritual is performed once or twice a year, which provides motivation for the conservation of Dangsan Forests as sanctuaries. In Jeju Island, Dang is the place where Dangsan Forest is located. The background of the Dang is animism and shamanism. There are Simbangs in Jeju Island who perform the Dang ritual and serve as mediators to gods. Most of the Dang are ancient and unremarkable. This may be the reason why it has not generated much public attention. Additionally, the level of preservation for the Dangsan Forests has been low. In the inland region, many Dangsan Forests were abused for recreation. In Jeju Island, the Dangs have been disturbed recently by road construction. In order to restore the authenticity of the Dangsan Forests, it is necessary to provide maximum preservation and maintain the original features and functions. A social mechanism needs to be established to support the recovery of the authenticity of the Dangsan Forest. Public awareness needs to be promoted to claim the value of Dangsan Forest as a unique biocultural landscape of Korea.

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10.1 Introduction

The traditional village forests of Korea constitute unique cultural landscapes with a history of more than several hundred years. The traditional village forests in Korea are mainly known as Bibo Forests, which function to protect villages. The Dangsan Forests are sacred places where the Dangsan ritual is performed. Recently, traditional village forests in Korea have been classified into Dangsan Forest and Bibo Forest (Choi and Kim 2009) based on their characteristics and features. In general, the Dangsan ritual starts at midnight of January 15 of the lunar calendar. Although some Dangsan Forests have diminished with the abolition of the Dangsan ritual, a considerable number of rural villages still have them.

In Jeju Island, the Dangsan Forests have evolved into a different form. Jeju Island, a volcanic island, is a unique place which has been nominated as a Biosphere Reserve (2002), World Natural Heritage (2007), and Global Geopark (2010) by UNESCO. The traditional village forests in Jeju Island are composed of the Dang Forest and the Pojedan Forest (Choi et al. 2012). There are 368 oreums (parasitic volcanoes) and 391 altars of Dang (divine places) in Jeju Island. The Dang in Jeju Island, however, has been threatened by road constructions in seashore areas and the establishment of the Jeju Olle trail path. The rural villages in Jeju Island need to find a way to retain the sanctuaries of Dang and the oreums to enhance the value of the biocultural landscapes in Korea.

Ancient artifacts are valuable only when the authenticity is retained. Except for rural residents who perform the Dangsan ritual, there are not many people who recognize the value of Dangsan Forests. Throughout the wide spectrum of social changes resulting from the Korean War, rapid industrialization, and prevailing Christianity, Dangsan Forests have been forgotten. The traditional village forests of Korea in coastal and estuary areas are not only of ecological value, but also have a deep historical and cultural significance for linking men and natural landscapes (Hong and Kim 2011). Although Dangsan Forests is highly valued for representing Korean biocultural landscapes, it has been recognized only by a limited group of people. The objectives of this study were to understand the nature of Dangsan Forests and to find a way to restore its authenticity.

There are two distinct types of Dangsan Forests found in two regions; the Korean peninsula and Jeju Island. The characteristics of the Dangsan Forests and Bibo Forests in the regions were investigated based on physical features such as size, shape, location, and tree species composition, as well as cultural aspects and tradition (Choi and Kim 2009; Choi et al. 2009).

The possibilities of enhancing their value and benefits have been explored and discussed. Sites in Korean peninsula were investigated during 1999–2012 and a total of 40 villages, 20 villages from inland and 20 from seashore were studied

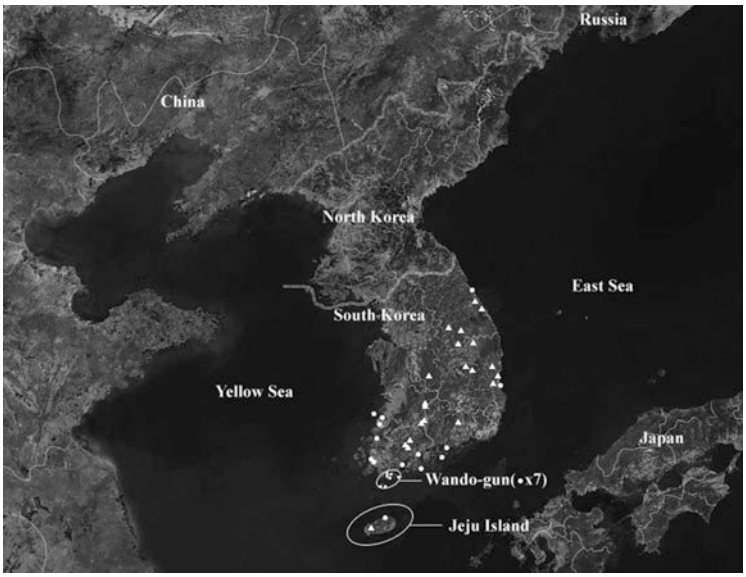

Fig. 10.1 Study sites in the inland and seashore areas of Korea including Jeju Island (Δ *Inland villages*, ○ *Seashore villages*)

(Fig. 10.1). Sites in Jeju Island were explored from 2006 to 2012, one at a mid-mountain village in Jeoji-ri, and the other at a seashore village in Sinheung-ri.

10.2 The Characteristics of the Dangsan Forests in the Korean Peninsula

10.2.1 The Pattern of the Traditional Village Forests

The traditional village forests of Korea have been discussed to function as a Bibo Forest or village protector (Kim and Jang 1994). However, recent findings suggested that the traditional village forests also have Dangsan Forests as an additional component (Table 10.1, Fig. 10.2).

Many traditional village forests of inland areas tend to have both Dangsan Forest and Bibo Forest. There are two types in general: 1) Dangsan Forest type I which is established as one Dangsan Forest, 2) Dangsan Forest type II which is composed of a Dangsan Forest and a Bibo Forest (or another Dangsan Forest). Those types were also found at seashore villages (Fig. 10.2, Table 10.3). The most frequent type was Dangsan Forest type I (Table 10.3). In case of Dangin-ri, Wando-gun, the village forest was composed of a Dangsan Forest and five Bibo Forests (Table 10.2).

Table 10.1 Elements of traditional village forests in Korean Peninsula (Choi and Kim 2009)

Characteristics	Dangsan Forest	Bibo Forest
Significance of space	A space for the Dangsan god and nature	A space created to protect the village and farmland
Philosophical background	Animism	Feng-shui theory
Function	A sacred place in village	Prevention from natural disasters (wind, flood)
Components	Must have at least one of the following: Dangsan tree, shrine, and stone tower	No Dangsan tree, shrine, stone tower

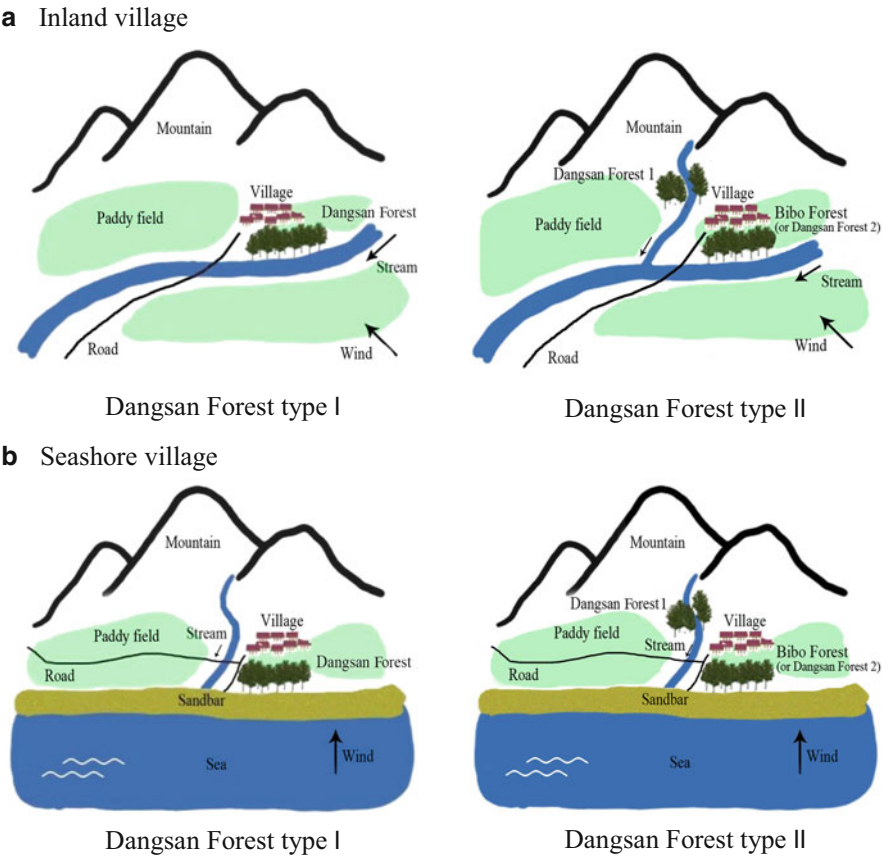

Fig. 10.2 Concept map of Dangsan Forest in traditional village forests in Korea (Choi and Kim 2009)

Table 10.2 The sizes of traditional village forests in the Korean Peninsula

Inland village			Seashore village		
Name	Forest type	Area (m^2)	Name	Forest type	Area (m^2)
Mati	Dangsan	2,100	Oeongchi	Dangsan	3,078
Nochi	Dangsan	620	Jin-ri	Dangsan	4,940
Gujung-ri	Dangsan	10,782	Jeungdo-ri	Dangsan	54,250
Mungok-ri	Dangsan	4,224	Oeam-ri	Dangsan	3,315
Yangsin-ri	Dangsan	16,475	Daldo-ri	Dangsan	44,000
Wolgye-ri	Dangsan	877	Nareampo-ri	Dangsan	1,250
Dochun-ri	Dangsan	20,368	Sunjung	Dangsan	8,500
Dongsan	Dangsan	4,550	Chilpo-ri	Dangsan	7,500
Dangchon	Dangsan	418	Maengseon-ri	Dangsan	5,500
				Bibo	10,800
Segan-ri	Dangsan	400	Singeum-ri	Dangsan	24,600
				Bibo	10,360
Sachon-ri	Dangsan	82,800	Woldu	Dangsan	(3,750)
				Bibo	(3,750)
Goeran	Dangsan	3,198	Dangin-ri	Dangsan	4,750
	Bibo	4,337		Bibo 1	5,130
				Bibo 2	11,550
				Bibo 3	1,600
				Bibo 4	5,260
				Bibo 5	750
Bukha-ri	Dangsan	1,160	Jangjwa-ri	Dangsan 1	840
	Bibo	1,880		Dangsan 2	2,100
				Bibo	3,892
Singi-ri	Dangsan	5,295	Dongho-ri	Dangsan1	32,225
	Bibo	2,250		Dangsan 2	1,500
				Bibo	12,300
Junam-ri	Dangsan	52,700	Daebang-dong	Dangsan 1	3,038
	Bibo	4,500		Dangsan 2	2,280
				Bibo	1,760
Dukdong	Dangsan	7,605	Wonchun-ri	Dangsan	324
	Bibo 1	1,564		Bibo	9,450
	Bibo 2	1,500			
	Bibo 3	1,950			
	Bibo 4	800			
Hahoe	Dangsan 1	2,500	Beopseong-ri	Dangsan	9,600
	Dangsan 2	3,400		Bibo 1	2,350
	Bibo	7,350		Bibo 2	8,842
Seongnam-ri	Dangsan 1	21,133	Jeongdo-ri	Dangsan 1	91,000
	Dangsan 2	2,537		Dangsan 2	4,500
Unyong-ri	Dangsan 1	625	Yesong-ri	Dangsan 1	1,900
	Dangsan 2	2,774		Dangsan 2	20,800
Songchun-ri	Dangsan 1	2,700	Seoseong-ri	Dangsan 1	6,900
	Dangsan 2	4,050		Dangsan 2	900

Table 10.3 The patterns of traditional village forests in the Korean Peninsula

	Dangsan Forest type I	Dangsan Forest type II	
Location	Dangsan Forest (alone)	Dangsan Forest and Bibo Forest(s)	Dangsan Forest 1 and Dangsan Forest 2
Inland village (20)	Mati village	Goeran village	Seongnam-ri
	Nochi village	Bukha-ri	Unyong-ri
	Gujung-ri	Singi-ri	Songchun-ri
	Mungok-ri	Junam-ri	
	Yangsin-ri	Dukdong village	
	Wolgye-ri	Hahoe village	
	Dochun-ri		
	Dongsan village		
	Dangchon village		
	Segan-ri		
	Sachon-ri		
Seashore village (20)	Oeongchi	Maengseon-ri	Jeongdo-ri
	Jin-ri	Singeum-ri	Yesong-ri
	Jeungdo-ri	Woldu village	Seoseong-ri
	Oeam-ri	Dangin-ri	
	Daldo-ri	Jangjwa-ri	
	Nampo-ri	Dongho-ri	
	Sunjung village	Daebang-dong	
	Chilpo-ri	Wonchun-ri	
		Beopseong-ri	

The traditional village forest in Dochun-ri had only one Dangsan Forest. Like most of the traditional village forests which function as riparian buffer, the Dangsan Forest in Dochun-ri was located nearby a stream. The size of the Dangsan Forest was 20,368 m^2, with major tree species: *Celtis sinensis*, *Zelkova serrata*, and *Cornus walteri* with average diameter at breast height (DBH) of 63 cm, 86 cm, and 51 cm, respectively. The Dangsan ritual has been performed at the shrine on January 15 of the lunar calendar. The traditional village forest in Junam-ri was composed of a Dangsan Forest and a Bibo Forest, with deciduous trees. Major tree species were *Ulmus pumila*, *Hemiptelea davidii,* and *Zelkova serrata*. The Dangsan tree was *Picrasma quassioides*. The Dangsan ritual has been performed on July 15. The traditional village forest in Songchun-ri was composed of two Dangsan Forests. The Dangsan Forest 1 was a deciduous forest, and the Dangsan Forest 2 was a mixed forest of *Zelkova serrata*, *Pinus densiflora*, and *Carpinus laxiflora*. The Dangsan ritual has been performed at midnight of January 1.

A similar pattern was found at the villages in seashore areas. Sunjung village's Dangsan Forest was composed of *Celtis sinensis*, *Aphananthe aspera*, and *Pinus thunbergii* with average DBHs of 68 cm, 72 cm and 44 cm, respectively. The Dangsan ritual has been performed at midnight of January 15. Evergreen broadleaf

Fig. 10.3 The pattern of the two Dangsan Forests in Jeongdo-ri, seashore village, Wando-gun (**a** The map of the village, **b** The shrine at Dangsan Forest 1, **c** Dangsan ritual)

forests are found in the southern coast areas and in Jeju Island. The Dangsan Forest of Singuem-ri was an evergreen broadleaf forest with *Castanopsis cuspidata*, and *Machilus thunbergii*. The Bibo Forest was composed of *Pinus thunbergii* which had an average DBH of 59 cm. The Dangsan ritual has been performed at the shrine at midnight of December 30. In Jeongdo-ri, the Dangsan Forest 1, alias 'Grandfather Dang Forest' was composed of evergreen broadleaf trees. The Dangsan Forest 2, alias 'Grandmother Dang Forest' was composed of deciduous trees with some evergreen broadleaf trees such as *Cinnamomum japonicum*. The Dangsan Forest 2 functioned as a wind break against strong winds from the sea (Fig. 10.3a).

The Dangsan ritual has been performed at the shrine of Dangsan Forest 1 at midnight of January 2, and later the ritual has been moved to the shrine of Dangsan Forest 2 (Fig. 10.3b, c).

10.2.2 Dangsan Ritual and Three Components of Dangsan Forest

Dangsan Forests are located in holy places where the Dangsan ritual is performed. A village ancestral rite called Dangsan ritual is performed once or twice a year. Dangsan ritual is a village-wide event to give thanks to the gods of nature and ancestors and to pray for prosperity and peace of the village. In general, the Dangsan ritual is performed in front of the Dangsan tree, shrine, or stone tower at midnight of January 15 of the lunar calendar. Dangsan ritual provides a motive for conservation of Dangsan Forests. Dangsan Forests get vital powers of sanctuary through the Dangsan ritual performed by local residents (Choi and Kim 2003; Choi et al. 2012). Among the 40 survey sites, Dangsan ritual was observed in 18 villages.

The Dangsan Forests in the Korean peninsula have at least one of the three elements (Choi and Kim 2000): Dangsan tree, stone tower, and shrine (Fig. 10.4a–c). The Dangsan Forest at Gujung-ri, has all three elements, which is a rare case (Choi and Kim 2003). The major Dangsan tree species were *Zelkova serrata, Pinus densiflora, Celtis sinensis,* and *Kalopanax pictus*. The remains of a stone tower were found at Seoji-ri. The three kinds of stone tower (Fig. 10.4d, left) were designated as 'Village Shrine at Seoji-ri, Andong' of Gyeongsangbuk-do province folklore cultural prosperities No. 100. The remains of three piles of big stones on the left of Fig. 10.4d were reported to be from the Bronze ages (tenth century BC) by the Cultural Heritage Administration (CHA) of Korea. The bottom stone was 2.5 m long, 1.8 m wide and 1.3 m high. It was estimated that this megalithic relic has been altered to a common stone tower later, which is shown on the right of Fig. 10.4d (Choi et al. 2010). The 'Village shrine at Seoji-ri, Andong' is a valuable relic which showed the origin of the stone tower. The performance of the Dangsan ritual has ceased since the Korean War, and was resumed recently by village people every January 15 of the lunar calendar (Fig. 10.4d, e).

Recently, Dangsan Forests have been discussed as a sacred natural site, an aspect of natural resources in UNESCO (Kim 2012). The jewel beetle (*Chrysochroa coreana*) (Natural Monument # 496) is in danger of extinction in Korea (Han et al. 2012). Horse trappings decorated with jewel beetle wings, dating back to 57 BC-935 AD during the era of Silla Dynasty, were excavated in Gyeongju in the early 1970s. The known habitat of jewel beetle is the stem of old *Celtis sinensis, Machilus thunbergii*, etc. Because the *Celtis sinensis* is one of the Dangsan tree species, the Dangsan Forest is important for conservation of the jewel beetle.

Fig. 10.4 Three components of the Dangsan Forest (**a** Dangsan tree in Suyoung-dong, Busan, **b** A stone tower in Geumnam-ri, Yecheon-gun, **c** A shrine in Sungnam-ri, Wonju-si, **d** The origin of the stone tower, Seoji-ri, Andong-si, **e** Dangsan ritual)

10.2.3 Water Quality and Dangsan Forests

Riparian buffers play a role to affect the quality of stream water (Forman 1995). Choi and Kim (2005) reported the results of a study designed to investigate water quality in relation to Dangsan Forests. Four study sites were selected, and water samples were collected at the spots 150 m before and after Dangsan Forests. Results showed that water temperature, electric conductivity, and total nitrogen were significantly different when there was a Dangsan Forest. Other water quality factors also seemed to indicate an improvement with the presence of Dangsan Forest (Table 10.4).

Table 10.4 Effects of Dangsan Forest on water quality (Choi and Kim 2005). Means with different *letters* are significantly different (p=0.1)

	Spots of sample collection	
	Before Dangsan Forest	After Dangsan Forest
No. of aquatic invertebrate species	7.50a	9.75a
Group pollution index	1.42a	1.35a
Dissolved oxygen (mg/l)	9.45a	9.42a
Temperature (°C)	20.40a	18.40b
pH	7.15a	6.94a
Electric conductivity (ds/l)	0.11a	0.09b
Biological oxygen demand (mg/l)	2.15a	1.04a
Chemical oxygen demand (mg/l)	18.80a	13.50a
Suspended solid (mg/l)	3.97a	2.92a
Total nitrogen (mg/l)	8.98a	6.92b
Total phosphorus (mg/l)	0.27a	0.25a

10.3 The Characteristics of the Dang Forests in Jeju Island

10.3.1 Jeju Island and Features of the Dang

Jeju Island is a special and unique place in Korea which has been nominated as a Biosphere Reserve (2002), World Natural Heritage (2007) site, and Global Geopark (2010) by UNESCO. In 2011, it has been proclaimed as one of the New Seven Wonders of Nature.

The place where Dangsan Forest is located is called a 'Dang' in Jeju Island. Life, culture, and tradition of rural villages are all connected with the Dang and oreum in Jeju. There are 368 oreums and 391 altars of Dang in Jeju Island. The island retains its beautiful scenery with its unique culture and history, making it worth visiting. In Jeju Island, people believe that there are 18,000 legendary goddesses who are connected to many stories of myth (Jeju Special Self-Governing Province and Jeju Traditional Culture Institution 2009).

Most of the villages in Jeju Island have retained the Dang and Pojedan (Table 10.5). Experts say that at first there was Dang only, and later, Pojedan was derived from Dang. The features of traditional villages are based on the Dang and the oreum in Jeju Island, and they are similar to the Dangsan and Bibo Forests in the inland region. Oreums are secondary volcanoes erupted after the major volcano activity. Most seashore areas are covered by volcanic rocks in Jeju Island, and windbreaks are hardly found. No stone tower was found in the mid-mountain villages. It was found, however, in many seashore villages. In Sinheung-ri, the stone towers were built to block evil spirits. But unlike in the inland region, rituals were not held at the stone tower.

The locations of the Dang were related to the topography created by volcanic activities. For example, the edges of the Dang Forest and the Pojedan Forest at Sangmyung-ri were on the slopes of basalt. The altar and the divine tree,

Table 10.5 Elements of traditional village forests in Jeju Island (Choi et al. 2012)

Characteristics	Dang forest	Pojedan (forest)
Significance of space	A space for the Dang god and nature	A space for the prosperity of village
Philosophical background	Animism + shamanism	Derived from Dang, Confucian ideas (located in forest, or paddy field, oreum)
Function	A sacred place in village	A sacred place in village
Components	Must have at least one of the following: altar (shrine), divine tree (Dang tree)	Altar (Pojedan) (stone tower of seashore village: substitute for Bibo Forest)

Castanopsis cuspidata were in a lava stone's crack. The topography seemed to be appropriate for the people at that time to establish the Dang (Choi et al. 2012).

10.3.2 Current Conditions of Dang

In Jeoji-ri, a Dang was located at the base of Jeoji oreum (Fig. 10.5a). Jeoji oreum had its crater with perimeter 800 m, diameter 255 m, and depth 62 m. There was a view point in the middle between the top and the bottom. The area of the Dang Forest was small at 23 m × 145 m. It was a mixed forest of *Pinus thunbergii* and *Celtis sinensis*. The size of the altar located inside the Dang Forest was 10 m × 7 m, and the divine tree species was *Elaeagnus umbellate*. The Dang of Jeoji-ri was inconspicuous, (Fig. 10.5) but this place was an important sanctuary for village women. Village women have visited the Dang Forest for prayer three times a month; 7th, 17th, and 27th. Jeoji-ri's Dang ritual was performed in the early morning of January 7 of the lunar calendar (Fig. 10.5). The Po ritual was interrupted by accident, and since then, the Pojedan Forest has been left alone. Jeoji-ri has been nominated as the fourth most beautiful village in Korea in August 2012.

The five stone towers at seashore in Sinheung-ri displays a spectacular view. The two among the five stone towers, is designated as 'Sinheung-ri's stone tower No. 1′ (Folklore material No. 8–10), and 'Sinheung-ri's stone tower No. 2′ (Folklore material No. 8–11) by Jeju Special Self-Governing Province. They have retained their original forms. On the other hand, the other three stone towers were rebuilt recently. The three stone towers on the sandbar were exposed at low tide, but partly submerged under water at high tide. There were small altars for Dang and the god of the sea on the seashore, sized 6 m × 7 m and 4 m × 3 m, respectively. The former divine tree, *Celtis sinensis,* still exists but the Dang ritual is not performed there anymore.

Fig. 10.5 Biocultural landscapes in Jeju Island (**a** Jeoji oreum and Dang Forest at Jeoji-ri, **b** The altar, **c** Offering a sacrifice on the altar during Dang ritual at Jeoji-ri)

10.3.3 Dang Ritual at the Dang Forest

The Dang is a symbol of Jeju Island's shamanism and animism. The Dang Forests in Jeju Island are distinct from those of the inland region. The special attribute of the Dang in Jeju is its practicing believers. There are village women who are in charge of the Dang. The Dang ritual is held at various dates: once or twice a year, four times a year, or 3–7 days per month, etc. The Dang ritual is performed by a Simbang, a male shaman, who mediates between the people and the gods. In the inland region, however, the shaman used to be a woman. In 2009, the Jeju Chimeoridang Yeongdeunggut ritual was nominated as an Intangible Cultural Heritage of Humanity by UNESCO.

Figure 10.6 shows a Dang ritual of Songdang-ri. Formally, the Songdang-ri Dang ritual is performed four times in a year. The Songdang-ri Dang (Folklore Material No. 9-1 by Jeju Special Self-Governing Province) is the origin of all Jeju Island's Dang.

10.4 Naming of the Dangsan Forests

Currently, natural monuments are designated and named by CHA based on the rule enacted in 1934. Many Dangsan Forests were named as evergreen forests. The 'Singeum-ri Dangsan Forest' was named as 'Oenarodo Evergreen Forest of Goheung' (Natural Monument No. 362), and the 'Kind of cultural properties' was introduced as 'Windbreak Forest'. This type of name does not represent the meaning of Dangsan Forest. Also, it is not correct that the Dangsan Forest of

Fig. 10.6 Village women of Songdang-ri watching a shaman performing of Dang ritual in the early morning of January 13 of the lunar calendar

riparian buffer at Sachon-ri, Uiseong was named 'Roadside forest in Sachon-ri, Uiseong' as Natural Monument # 405 (Choi et al. 2011). It was recommended that Dangsan Forest have their names as follows: 'Dangsan Forest at __', 'Dangsan Forest and Bibo Forest at __', or 'Dangsan tree at __' (Choi and Kim 2010).

10.5 Conclusion

The traditional village forests make unique cultural landscapes in Korea with histories of more than several hundred years. They have been acknowledged as Bibo Forests, which means protection of the village. The traditional village forests were found to have an additional component, the Dangsan Forest. These forests are holy places where Dangsan rituals are being held. Although many Dangsan Forests have been disturbed with the abolition of Dangsan ritual, a considerable number of rural villages still have Dangsan Forests. In the inland region, many Dangsan Forests were abused for recreational purposes. The Dang ritual in Jeju Island performed by village women and shaman provide motives to keep these biocultural landscapes. Some Dang altars have been disturbed by road construction near the seashore and the development of Jeju Olle trail paths. In order to restore the authenticity of the Dangsan Forests, the government needs to preserve them to maintain their original features and functions. A social mechanism needs to be prepared to support the recovery of the authenticity, and to enhance public awareness of the Dangsan Forests which represent a unique biocultural landscape of Korea.

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