

Multifunctional Activities on Nordic Golf Courses: A Survey



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Preface

Of the 1,000 golf courses in the Nordic countries – covering more than 70,000 hectares of land – many can provide a wide range of additional services that society demands, such as rural development; conservation of natural and cultural heritage; biodiversity; and areas available to the public, for outdoor recreation, and outdoor learning. From a golf club's perspective, multifunctionality can also provide opportunities for alternative income; stronger ties to the local community; improved collaboration; and, in many cases, shared costs with authorities, environmental and outdoor recreation organisations, and other sports clubs; as well as a greater appreciation among the public and increased political support.

In order to create conditions for the development of more multifunctional golf courses, and thereby increase the societal benefits of golf, we need more knowledge and changing attitudes at all levels within the golf industry as well as among other stakeholders in society with an interest in land used for golf courses. The aim of this study has been to investigate ongoing multifunctional activities at Nordic golf facilities, which serve as important background information for future research and development in this area.

The practical examples we present are based on experiences from a selected number of golf facilities asked to contribute to this report. The examples show how Nordic golf clubs are working with multifunctional activities and creating important assets for the golf facilities and for society. Our hope is that these examples will inspire others to take initiative to create multifunctional activities on golf courses and thereby demonstrate the societal benefits of golf.

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Summary and conclusions

Multifunctional golf courses are currently an untapped resource. These can help increase the societal benefits of golf if operations are run with a holistic perspective in which the efficient use of green areas and public interest in nature and recreation are central. In 2017, a survey was carried out to gather information from Nordic golf courses about multifunctional activities at today's clubs. Just under 300 golf clubs responded to the survey, which corresponds to a response rate of approximately 40%. The golf associations in the Nordic countries have been responsible for informing of and circulating the survey. The highest number of responses came from the clubs in Sweden and Iceland. Differences in response rates between countries may indicate that the clubs' commitment to important social issues depends on golf associations taking responsibility for and pursuing the issues that are pivotal for the future of golf. Proportionally, a larger part of rural golf clubs responded to the survey. This might indicate that they are more interested in and dependent on a multifunctional approach to make ends meet. However, for society at large it is particularly important that golf courses near cities and in the peri-urban landscape, where there is considerable competition for land, prioritise and develop multifunctional activities.

Local partnerships are a precondition for creating multifunctionality. By collaborating with other actors in the landscape, a golf club can also strengthen its position in the implementation of the UN Sustain-

able Development Goals in the 2030 Agenda. The survey responses show that all golf clubs must increase their efforts to create strategic relationships and partnerships with local authorities and other actors in society.

Golf clubs can be important actors in the conservation of natural and cultural heritage. Close to 40% of the clubs have made nature inventories and more than half of the clubs are making efforts to increase biodiversity. Several golf courses also showcase and preserve objects and sites of cultural importance. In and around metropolitan areas, the land and nature available to the public is limited. Here, golf courses are being developed into arenas that include sports, outdoor recreation, and social interactions as well as peri-urban nature and culture. More than 60% of golf clubs are currently working to increase the accessibility of their facilities to the public. In order to demonstrate the societal benefits that the golf course can bring to the conservation of natural and cultural heritage as well as to recreation, it is important that clubs in a credible way communicate these efforts to society and the public.

A third of the golf clubs collaborate with other sports associations and a quarter offer other sporting activities than golf. There is potential in creating deeper partnerships with other sports, for example with the aim of organising bigger events, investing in shared facilities, and sharing specialist competencies.

Almost 30% of the golf clubs act as service providers and offer green area and forest conservation, snow clearance, etc to local authorities and companies. Close to a quarter also let accommodation. In order to equalise seasonal fluctuations, improve the profitability of the club, and enable staff continuity, further development of various service packages could be a solution. Efforts to develop golf tourism can offer significant revenue opportunities, for example through increased letting of accommodation.

Important areas for research and continued development are:

- How the multifunctional golf course can be made accessible and be designed to contribute in a safe way to social interactions, good health, and quality of life for many different groups in society at the same time.
- How golf courses can be used and improved as a resource in the work on biodiversity and green infrastructure as well as to preserve and develop ecosystem services, provide peri-urban nature, and showcase and preserve objects and sites of cultural importance.
- Documenting and communicating good examples of forms of working and methods to create dialogue, involve, and cooperate with a greater number of actors and interests in society in order to create multifunctionality.



Background

Multifunctional golf courses are currently an untapped resource. These can help increase the societal benefits of golf if operations are run with a holistic perspective in which the efficient use of green areas and public interest in nature and recreation are central. Golf courses have multiple roles to play in addition to providing areas for playing golf. If we look at golf from an outside-in perspective, we realise that golf courses can offer a wide range of services that society demands, such as rural development, conservation of natural and cultural heritage, biodiversity, and areas open to the public, outdoor recreation, and outdoor learning. This is of particular importance in the dense urban landscape where access to meaningful green environments near cities is becoming increasingly limited. In the cultivated landscape, golf courses can become important habitats and preconditions for biodiversity. Around ten per cent of our animals, plants, and mushrooms are endangered. This is usually a consequence of how their habitats have been affected by environmental degradation or the streamlining of agriculture and forestry.

Partnerships are the key factor to creating multifunctional golf courses. The form and direction of these partnerships have great potential to be adapted to meet the particular challenges facing golf courses, local communities, and regions. The partnerships must be all-encompassing and include different groups of actors such as local authorities, national agencies, clubs and associations, landowners, residents, businesses, etc. This type of collaborative work requires patience, trust, and thorough support among the leadership of all parties to succeed. Through partnerships with the various actors in the landscape, golf clubs can contribute to increased multifunctionality at the landscape level and in this way strengthen the position of golf in the implementation of the Sustainable Development Goals in the UN 2030 Agenda.

Many golf courses are currently experiencing economic difficulties and are attempting to find new ways to maintain and develop their operations. Multifunctionality can provide opportunities for alternative income, stronger ties to the local community, improved collaboration, and in many cases shared costs with

authorities, environmental and outdoor recreation organisations, and other sports clubs, as well as a greater appreciation among the public and political support.

Previous studies

The concept of multifunctional golf courses was created through the pilot study “Multifunctional Golf Courses: An Underutilised Resource”, which was carried out by Scandinavian Turfgrass and Environment Research Foundation (STERF) with support from the Nordic Council of Ministers in 2010 and 2011. This was also the start of the work on multifunctionality in golf. The project identified and described examples of multifunctional activities at a number of Nordic golf courses. The examples show that a multifunctional golf course offers an opportunity to develop a range of services that society demands, and that partnerships are a very important factor for the realisation of multifunctionality. Results from additional projects and studies show that a multifunctional approach can be profitable for the golf course and increase ties to and benefits for society through work on the environment and sustainable development.

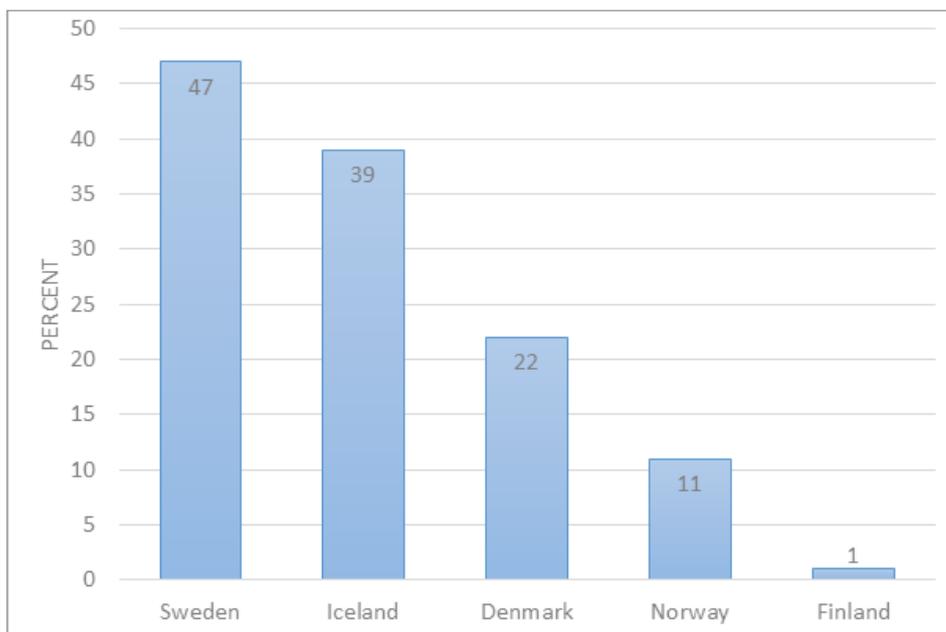


Figure 1. The proportion of clubs that responded to the survey of the total number of clubs in each country.

The survey

The aim of the study is to identify the status of golf clubs today with respect to the activities that are under way to develop the concept of multifunctionality. This is information that is needed for continued research and development in the area.

The study is designed as an online multiple-choice survey, with opportunities for leaving additional comments. The survey was sent to all golf clubs in Denmark, Finland, Iceland, Norway, and Sweden. A total of 745 clubs received the survey in the spring and summer of 2017. 296 clubs have responded to the survey, corresponding to a response rate of 40%. The golf associations in the Nordic countries have been responsible for informing of and circulating the survey. The degree to which this has been followed up and the number of reminders the golf associations have sent out vary.

Response rates and categorisation of respondents

The proportion of clubs that have responded varies greatly between the different Nordic countries, see Fig. 1. In Sweden,

47% of the clubs responded, while less than 1% of the Finnish clubs responded to the survey. One probable explanation for this is the degree to which the concept of multifunctionality has attracted attention in each country and how the respective golf associations prioritised to disseminate the survey and follow up on whether the clubs responded. In Sweden, the Swedish Golf Federation (SGF) has run a comprehensive programme on the "Societal benefits of golf" and on Iceland golf has long been a communal and social phenomenon, which means that multifunctionality is on the clubs' agenda. In Denmark, several individual clubs have campaigned strongly on the issue, while in Finland and Norway multifunctionality has not been a focus in the same way. This shows that a prerequisite for creating commitment at a club level is that the golf associations take responsibility for and pursue the issues that are pivotal to the future of golf.

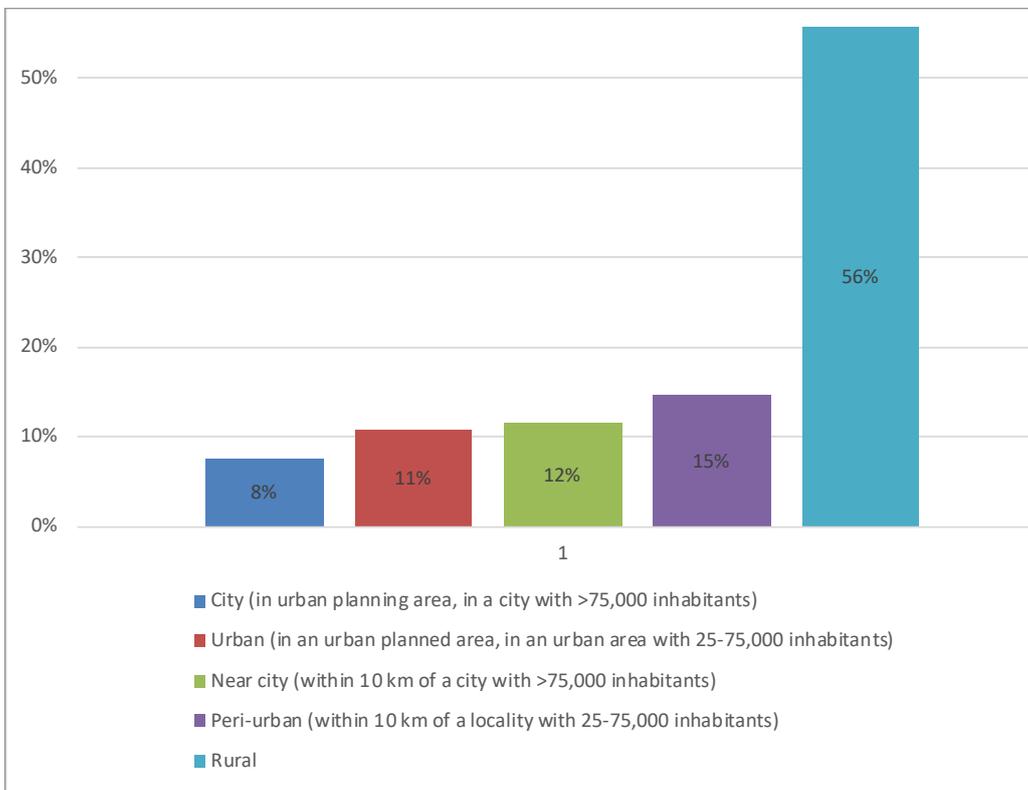


Figure 2. Distribution of multifunctional golf courses between urban planning areas, areas near cities and peri-urban areas, and rural areas.

The location of the golf course

The survey responses show that 18% of the golf courses are located within urban planning areas adjacent to a city or urban community, 26% are near-city and peri-urban clubs outside the urban planning area, while 56% of the courses are located in rural areas, see Fig. 2. Proportionally, a larger part of rural golf clubs thus responded to the survey. This might indicate that they are more interested in and dependent on a multifunctional approach to make ends meet.

However, for society at large it is particularly important that golf courses near cities and in the peri-urban landscape prioritise and develop multifunctional activities. This is especially significant in view of the lack of access to urban green areas, ecosystem services, etc.



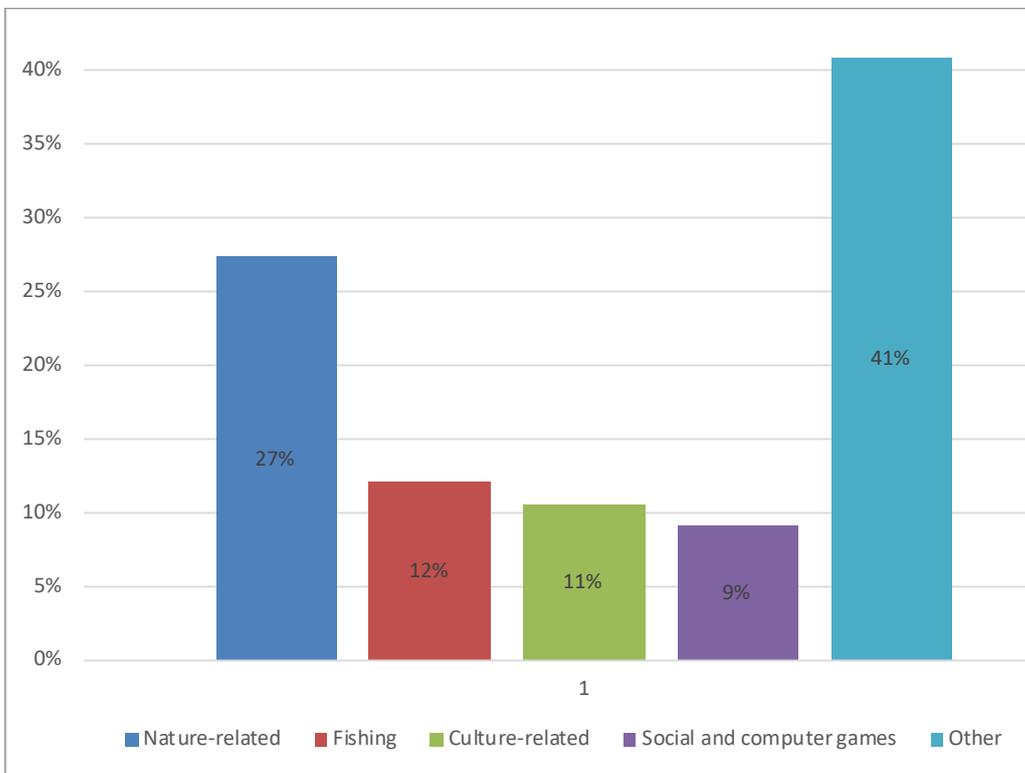


Figure 3. Areas in which golf clubs collaborate with various actors in the local community, outside the sport.

Local partnerships

External partnerships are an important factor for the development of golf clubs. Golf clubs can also contribute to increased multifunctionality at the landscape level by collaborating with other actors in the landscape, and in this way strengthen their position in the implementation of the UN Sustainable Development Goals in the 2030 Agenda. The national implementation of the 2030 Agenda includes local authorities and county councils as well as state agencies and government offices. How the 17 global sustainable development goals are attained also depends on the involvement of other actors such as NGOs, businesses, trade unions, and academia.

Twenty-five per cent of golf clubs consider themselves to have partnerships with other associations outside the sport. Fig. 3 shows examples of areas in which golf clubs collaborate with various actors in the local community. The most common are partnerships with actors within conservation of natural and cultural heritage. The types of partnership vary from simple co-organisation to projects of a more strategic nature, such as development of shared facilities for the preservation of objects and sites of natural and

cultural importance and the promotion of biodiversity. Other forms of partnership mentioned are various types of business networks and associations as well as collaboration with local schools.

The golf club's relationship to the local authorities

A large proportion of the clubs, around 60%, consider themselves to have close partnerships with the local authorities. The specifications in their responses show that in many cases these partnerships are of a simpler nature, such as lease agreements for the golf course, financial subsidies, or building permit matters. If golf clubs are to contribute to the sustainable development of society and exert influence on important local decisions, clubs must develop more strategic partnerships with the municipal and regional authorities. Other sports, such as football and ice hockey, have a more prevalent tradition of participating in and exerting influence on municipal decisions. These are often able to influence the local authorities to make significant financial investments in sports facilities.

There is a great interest among Nordic golf clubs in partnerships with schools

and preschools. Today, 80% state that they already organise activities in collaboration with schools and preschools. Here, too, there is great potential in developing a more strategic and long-term partnership, in which outdoor learning at the golf course becomes part of the national curriculum for schools and preschools.

Examples

P "The Sigtuna Project: A Landscape for All" is an example of how partnerships with the local authorities and other actors in society can be initiated by the golf club. Through this project, **Sigtuna Golf Club** in Sweden wanted to help make a larger area around lake Garnsviken, including the golf course, a natural part of the Sigtuna residents' everyday life and leisure, and create a forum for anyone with an interest in the development of the area. From the perspective of golf, the club wanted the course to be "discovered" and used by more groups than just golf players. The area around lake Garnsviken is unique. A limited area, ca. 6 x 3 km, offers several types of landscape that are the fruits of both human activities and naturally created objects and sites of natural importance.



Workshop at Sigtuna GC

The area is directly adjacent to the north-eastern part of the expanding Sigtuna and is used by many for outdoor activities and recreation. The initiators behind the project were Sigtuna Golf Club, the Sigtuna branch of the Swedish Society for Nature Conservation, and STERF. 50 different actors in the area took part in the project and created ideas together and prioritised various activities. Sources of inspiration for the project were the European Landscape Convention and the project “Multifunctional Golf Courses: An Underutilised Resource”, carried out by STERF and the Nordic Council of Ministers in 2011.

In order to extend its golf course from nine to eighteen holes, **Mosfellsbær Golf Club**, Iceland, needed access to an area with natural monument status. The Environment Agency of Iceland and the local authorities demanded that public footpaths and bridleways be built along the beach, which meant that no holes could be built between the trails and the sea. According to Iceland’s national ancient monuments register, the area holds around 20 isolated locations with archaeological remains that had to be taken into account when the new course was designed. The planning work required active cooperation between all parties that were interested in gaining access to the peninsula. The club sought partnerships with all outdoor recreation

organisations and sports clubs in the area, and a master plan was created that ensured recreation to fit everyone’s interests. Today, Mosfellsbær Golf Club has a golf course with roads and trails along the entire shoreline as well as a path that cuts straight through the new nine-hole course. The golf course is also situated at a safe distance from the river Korpa’s estuary, to meet the requirements of fishing enthusiasts.

Motala Golf Club, Sweden, is part of the project “The Golf Course as an Outdoor Classroom” which studies how the golf course can become a resource for outdoor learning in schools. Access to urban green spaces and peri-urban nature is constantly shrinking as a consequence of development and densification of our cities. The lack of sufficiently large and suitable “green” areas is frequently mentioned in the discussion around outdoor learning. By creating an increased availability and partnerships with schools in the local community, golf courses can provide more children and youths with access to valuable peri-urban nature. The children and their parents are also potential new golfers. Motala Golf Club and Smedsby School in Motala are involved in the project, which examines if and how parts of the golf course can be used as a classroom for teaching in all school subjects in grades 1–6.



Outdoor classroom at Motala GC

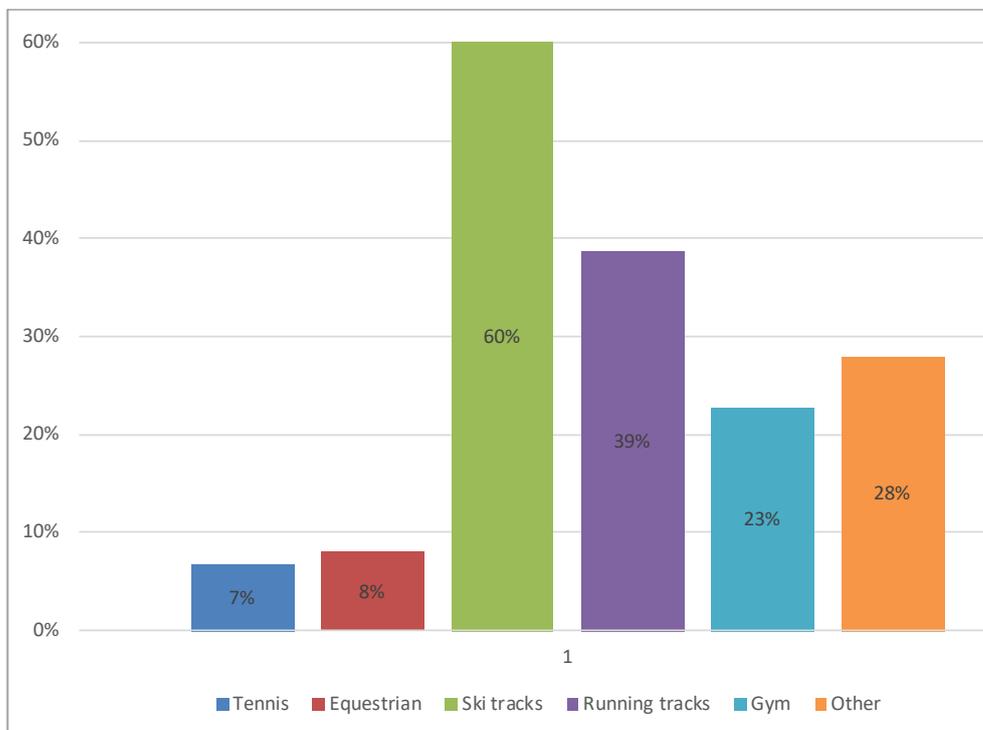


Figure 4. Examples of other sports activities than golf offered at many golf clubs.

The golf club's relationships to other sports and sports clubs

Thirty per cent of the clubs responded that they have and have had partnerships with other sports clubs for at least 5 years. The most common are partnerships with ski clubs in the locality. Many clubs also state that they work closely with other golf clubs in the area.

Today, 25% of golf clubs run other sports activities than golf. Ski trails, running and walking paths, and fitness centres are the most common, see Fig. 4. Under "Other activities", surprisingly many clubs indicate that they also offer footgolf, which is a good example of the ambition to make golf attractive to new target groups.

Example

Gamle Fredrikstad Golf Club, Norway, is a near-city golf club that has created a wide set of partnerships with many other sports clubs, while also trying to connect with the historical land that the golf course is located on, close to the Fredriksten Fortress and the Old Town. The club offers running and bike paths on the golf course and creates ski trails together with the ski club in the winter. Football and footgolf activities are offered on a pay and play course. Adjoining the golf course are bridle paths and a shooting range. In order to attract youths engaged in other sports, the club organises "mini Olympics" and various sports competitions.



Rider at Gamle Fredrikstad GC

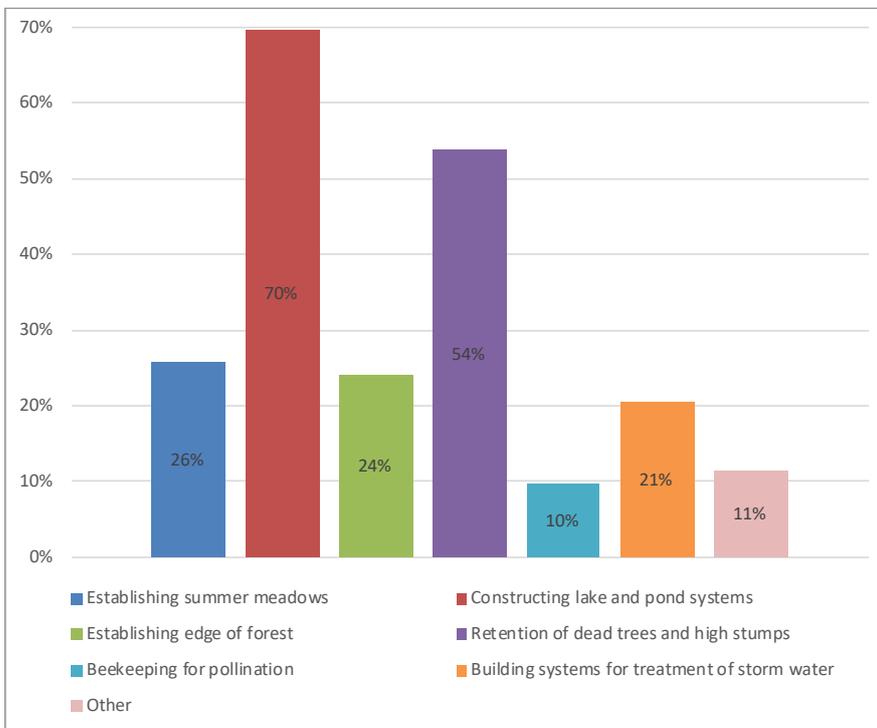


Figure 5. Common activities on the golf course that benefit biodiversity.

The golf club as custodian of nature and culture

In many cases, multifunctional golf courses can help protect, preserve, restore, and recreate important habitats, ecosystem functions, and natural processes. This means that golf courses can be important actors in, for example, partnerships for green infrastructure. In the past, the golf course was seen by many as a negative feature in the landscape and was often considered to contribute to environmental degradation. This attitude has gradually shifted, as numerous studies have shown that the golf course can be a valuable resource that contributes to a multifaceted environment where many of our red-listed species thrive. The vast majority of golf courses are located in landscapes that humans have cultivated, built, and walked on for many centuries. Several golf courses have highlighted their cultural heritage sites by putting up information signs and building paths that lead there. Making our objects and sites of cultural importance visible and accessible is important, as they endow our lives with meaning and place us in a historical and cultural context.

In order to demonstrate the societal benefits that the golf course can bring to the conservation of natural and cultural heritage, it is important that clubs communicate these efforts to society and the public.

Nature conservation and biodiversity

The survey shows that 37% of golf clubs have made inventories of the flora and fauna on utilised land areas, i.e. the entire golf course. If the average area of a golf course is 60 hectares, this corresponds to a total of 6,500 hectares of inventoried land areas. As a result of this, 55% of the clubs consider themselves to be making efforts to increase biodiversity. The construction of ponds and summer meadows that benefit biodiversity and leaving tree stumps are common practice, see Fig. 5. Other practices that are not shown in Fig. 5 may be to: put up nest boxes, build nature and culture trails, arrange sheep grazing, preserve islets of uncultivated land in the middle of fields, combat in-

vasive species, create enlargement areas for the white-backed woodpecker, and preserve oaks worthy of protected status. Some clubs indicate that they receive financial support from the municipality or government to carry out nature conservation. A common type of grant in Sweden is LONA-funding. LONA is a Swedish local conservation effort through which the county administration can provide grants for land users who want to run local nature conservation projects.

Example

Since its very inception, **Chalmers Golf Club** in Sweden has worked to develop golf from a sustainability perspective and engaged in a variety of nature



Salamander. Photo: N Sloth, Biopix

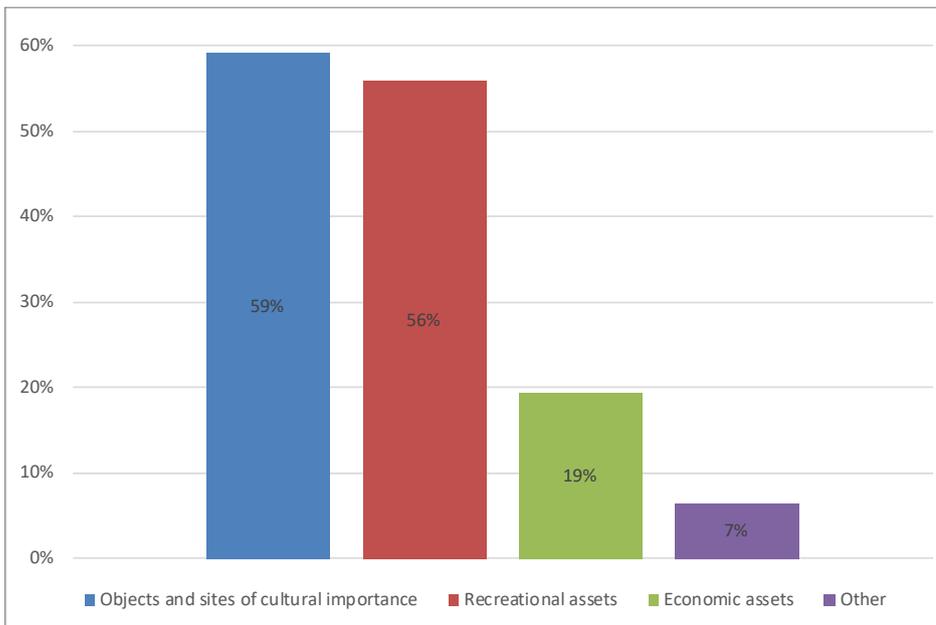


Figure 6. Assets offered by golf courses in addition to objects and sites of natural importance.

conservation efforts. The most recent is to host biotopes for red-listed salamanders and amphibians. According to Swedish environmental legislation, any project that involves an environmental impact must implement compensatory measures to maintain a healthy environment. During the Swedish Transport Administration's construction of the Björröds Junction in the vicinity of Chalmers Golf Club, the club was instructed to create new wetlands to save endangered species. As a response, the golf club built new wetland areas for frogs and salamanders in partnership with the Transport Administration, Skanska, and Region Västra Götaland's nature conservation unit. In this way, the club contributed to the preservation of red-listed species, the development of the natural environment, and the development of the golf course itself in terms of game strategy, both maintenance-wise and aesthetically. All measures were funded by the Transport Administration. This example shows that golf clubs should today be able to act as hosts for compensatory nature conservation measures to a much greater extent.

Conservation of cultural heritage and recreation

In addition to objects and sites of natural importance, golf courses deliver a range of other assets that are in demand in society. Examples include the showcasing

and preservation of objects and sites of cultural importance as well as the opening up of the golf course to recreation and outdoor activities for groups other than golf players, see Fig. 6. In addition to the values listed in Fig. 6, several golf clubs indicate that they are actively working to develop the tourist industry in the locality. 40% of respondents state that they have ancient monuments, cultural remains, or nature centres on the golf course, which may also contribute to attracting visitors to the golf club.

It is worth noting that barely 20% of the golf clubs have made any kind of inventory of potential economic assets, such as forest, soil, or gravel extraction, or similar.

Example

Nes Verk's Golf Course, Norway, is built on land that belonged to Nes Ironworks from 1665 until 1959. When the golf course was built, it was extremely important to preserve the area's rich cultural heritage. In addition to old buildings and industrial premises with machines, there is a pond structure and a romantic park from the 1800s that are framed by the beautiful cultural landscape. Cultural monuments have been marked and made accessible to both golfers and the general public. In several places on the course, there are heritage sites and remnants from the first

iron works period in the 1600s. Culture trails as well as fishing and swimming areas have been built and signposted in partnership with the local heritage association and iron works museum. The museum also organises cultural-historical walking tours on the golf course.



Historic walk at Nes Verks GC

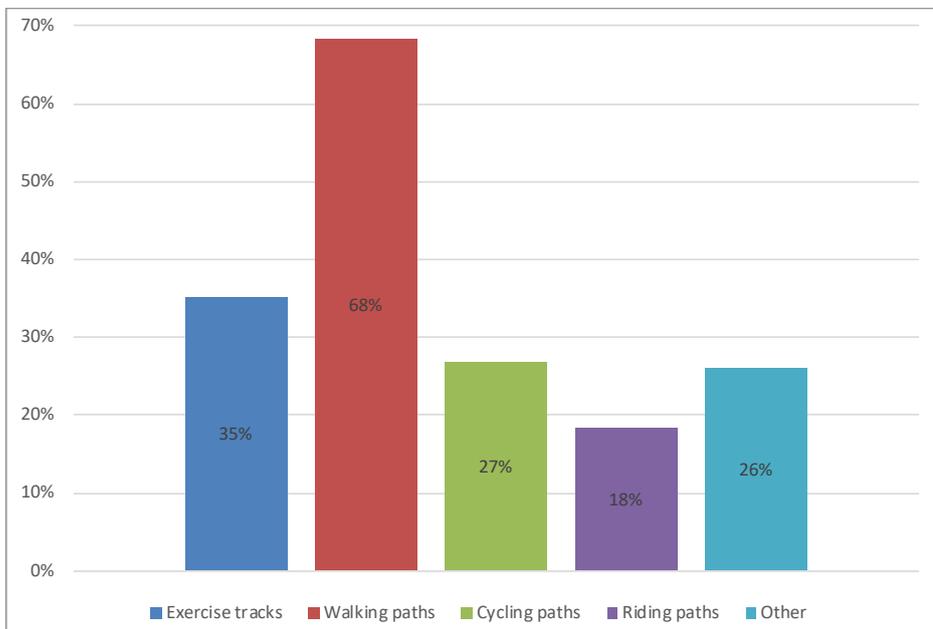


Figure 7. Examples of activities for the general public that the golf clubs offer in addition to golf.

The golf course as a resource for the public

In and around metropolitan areas, the land and nature available to the public is limited. Here, golf courses can become significant for varied uses and as readily accessible recreation areas for many people. The courses can be developed into an arena for outdoor recreation, nature, and sports that actively and effectively contributes to social interactions and supports democracy and integration.

More than 60% of the golf clubs are working to increase their accessibility to the public by, for example, building walking paths, running tracks, and riding and cycling paths, see Fig. 7. Many of the clubs that are not already working to increase availability indicate that they are planning to do so in the future. Other activities that the clubs are doing to increase accessibility to the public may be to: make swimming areas accessible, showcase and describe ancient monuments, remove barriers, and put up welcoming signs.

Example

Copenhagen Golf Club, Denmark, leases the land located in Jægersborg's Deer Park, also known as Jægersborg Animal Park. The park is a large nature reserve with great old trees and open spaces, where many visitors walk in

the woods, play golf, cycle, run, or go horseback riding. Everyone has an equal right to be in the area and is considerate of each other. The golf course must take into account the nearly 2,000 deer that roam free in the park and lend the course its special character and sense of exclusivity. Twice a year, golfers make room for large-scale events – an autumnal drag hunt called the “Hubertus Hunt”, when a large number of horses, riders, and spectators are on the grounds, and the “Hermitage Race”

with nearly 20,000 runners and spectators who cross parts of the golf course. In the winter, skiers and children with sleds seek out the golf course. The trails around the golf course are used by school classes in Copenhagen. There are also riding paths around and over the golf course that are used by riders from nearby riding centres. During the hunting season, some of the deer are shot, even on the golf course, without players and hunters disturbing each other.



Copenhagen GC

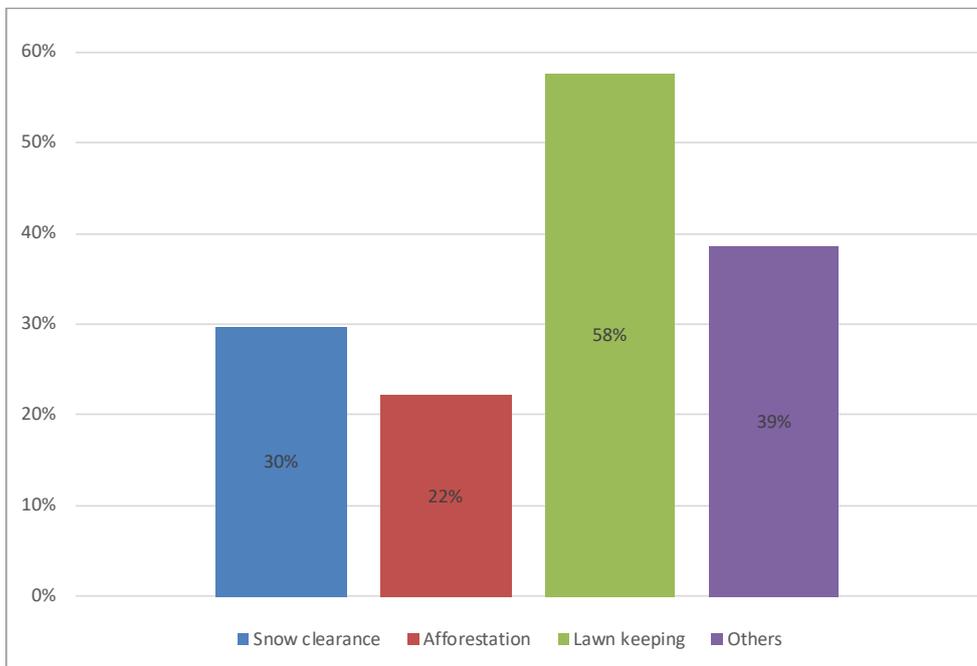


Figure 8. Examples of services offered by golf clubs to an external party.

The golf club as service provider

Golf clubs often have significant assets in the form of machinery and expertise, which are today only used to a certain extent. Recently, golf clubs have started partnering up to share expensive equipment and specialist expertise, but there is much room for development.

Around 30% of the golf clubs, predominantly rural clubs, currently make resources available to a third party, such as local authorities and companies. Common services that the clubs offer include lawn keeping, snow clearance, and afforestation, see Fig. 8. Examples of other services that the golf clubs offer are administrative services during the off-season, café and catering, janitorial services, and car repairs. Some clubs also hire out equipment and machines as an alternative to the machine pools that exist in other sectors. It is surprising that as many as one third of the clubs are service providers. But there is potential to develop several types of service packages in order to improve profitability and allow for the retention of skilled personnel during the winter months.

Close to 25% of the clubs, an unexpectedly high number, currently let accommodation, with a fairly even spread across rooms, cabins, and camping, see Fig. 9. Currently, there are also a number of

projects seeking to develop the concept of golf tourism, which should be able to offer a good revenue option for several clubs.

Example

In the spring of 2015, right before the start of the season, **Sotenäs Golf Club**, Sweden, suffered a fire in which the entire clubhouse was completely destroyed. Despite this, the club succeeded in continuing its operations with tremendous efforts from staff and volunteers. Board members and staff immediately started planning for the construction of a new clubhouse. After extensive

investigations, the board presented two proposals: one with an only slightly larger clubhouse, and one with a structure twice as large that also included a hotel and conference wing (17 hotel rooms). After intense discussions, the members accepted the board's main proposal, i.e. the hotel option. In the spring of 2017, the new clubhouse was inaugurated and instantly became a hit. Guests flocked to the hotel, training activities flourished, more golf was played, and after just half a season the club could conclude that the investment in the hotel will offer a substantial contribution to the club's finances in the future.



The hotel at Sotenäs GC

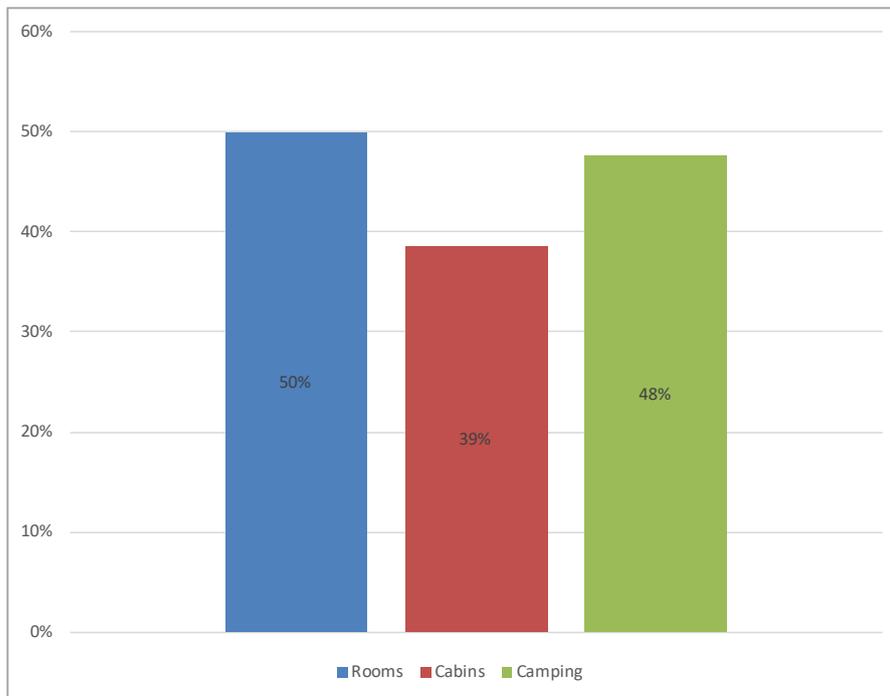


Figure 9. Examples of different types of accommodation offered by the golf clubs.

Research and development areas for the future

In order to create conditions for the development of more multifunctional golf courses, and thereby increase the societal benefits of golf, we need increased competencies and changing attitudes at all levels within the golf industry as well as among other stakeholders in society with an interest in land used for golf courses. Through its research and development programme, STERF has identified four key areas to increase expertise on the multifunctional use of golf courses:

1. Green areas and green spaces in the sustainable urban community and educational land use
2. The natural and cultural environment, ecosystem services, and biodiversity
3. Dialogue, interactions, and cross-border partnerships
4. Business promotion

Based on the survey responses, we note that the following areas are important to study and develop further:

- **Access and design:** How can a multifunctional golf course be made accessible and designed in such a way that

social interactions, aspects of health, and quality of life can be safely and simultaneously provided for different groups, such as golf players, the elderly, exercising individuals, runners, children, and youths? We should, for example, study and develop how a multifunctional golf course can offer different systems for trails such as health trails, nature trails, school trails, and trails for the disabled, in order to help different groups use the area according to their abilities. Another area that should be studied is how parts of the golf course can be designed as an educational space for, for example, primary school pupils, nature schools, and culture and sustainable development courses.

- **Preservation and development of ecosystem services:** There is a need for increased reliable knowledge and documentation about how golf courses can be used and improved as a resource in the work on biodiversity, in order to preserve and develop ecosystem services, and to provide peri-urban nature. Golf courses could

play an important role in linking up important structures and ecosystem services in the landscape. There is a need for new knowledge on how the role of golf courses can be increased in efforts to create the conditions for long-term conservation and better contact between valuable areas and structures, in other words, how golf courses can be integrated into the surrounding landscape.

- **Natural and cultural history:** There is a need for knowledge about how the golf course can be used as an arena for developing synergy between natural and cultural history and biodiversity. Knowledge of how cultural heritage on golf courses can be used to place us in a local historical and cultural context, and as a “tool” to foster public engagement.
- **Dialogue and partnerships:** There is a need for good examples of forms of working and methods to create dialogue, involve, and cooperate with a greater number of actors and interests.

Further reading

The following are examples of further reading on golf courses in a multifunctional landscape:

Caspersen, O.H. et al. 2014. Multifunctional Golf Courses. IGN Rapport, December 2014, Department of Geosciences and Natural Resource Management, University of Copenhagen, Frederiksberg. 180 p. www.ign.ku.dk

Colding, J. & S. Lundberg 2012. Golfbanan som våtmarks resurs. Scandinavian Turfgrass and Environment Research Foundation. 22 pp. www.sterf.org

Colding, J. & C. Folke 2009. The role of golf courses in biodiversity conservation and ecosystem management. *Ecosystems* 12: 191-206.

Colding, J., J. Lundberg, S. Lundberg & E. Andersson 2009. Golf courses and wetland fauna. *Ecological Applications* 19(6): 1481-149.

Jensen, A.M.D., Caspersen O.H., and Jensen, F.S. Schmidt, K. & Strandberg, M. (2015): Guide for värdering av golfbanans Multifunktionella värden. STERF, Danish outdoor council and Department of Geosciences and Natural Resource Management, University of Copenhagen. www.sterf.org 31p.

Jensen, A.M.D., O.H. Caspersen & F.S. Jensen 2015. A practical guide for assessing your golf course's multifunctional potential. STERF, Danish outdoor council, Department of Geosciences and Natural Resource Management, University of Copenhagen, Frederiksberg. 29 p. www.sterf.org

Landskapsforum 2016. Samarbetsnätverk i landskapet – möjligheter och utmaningar. Kungl. Skogs och lantbruksakademins tidskrift, 3–2016, 155. ISBN tryck 978-91-86573-82-9 digital 978-91-86573-83-6. 67pp.

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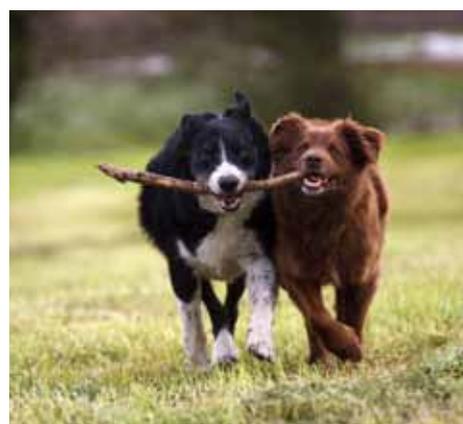
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