# Transatlantic Council BSA
# Sustainability Action Plan

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*Definitions of key terms and acronyms are in the Definitions section in the Appendixes.*

# OVERVIEW

## 1. Introduction to TAC

Transatlantic Council BSA (TAC) is the regional council of the Boy Scouts of America (BSA) serving BSA Scouts across Europe, the Middle East, Central Asia and Africa. TAC has 8 employees, supporting the activity of 2,000 adult volunteers, serving several thousand Scouts living in 50 countries. TAC serves girls and boys from ages 5-20. TAC delivers Unparalleled Scouting, by enabling world-class outdoor activities; teaching a wide range of skills (outdoor, sports, hobbies, STEM and careers); encouraging service to the community and the planet; providing the finest youth leadership training program; and instilling the values and ethics of the Scout Oath and Law. TAC's administrative offices are in Belgium.

## 2. TAC's Sustainability Mission

***We will set the gold standard in Scouting***
***for efforts to improve human impacts upon the planet.***
*We will achieve that by incorporating sustainability practices and training throughout our program, focused on impacts upon the natural world – the topics addressed in the Sustainability merit badge. We will be thousands of advocates for the planet in the Anthropocene Age. Our youth will change their own futures.*

Protecting our planet has always been at the core of Scouting, from Leave No Trace principles to conservation leadership and more. TAC is now directly confronting the twin emergencies of climate change and biodiversity loss. The *Planetary Emergency Primer* in the Appendixes introduces these issues.

The first key step in our Sustainability Mission was bottom-up, focused on individuals. In early 2021, we launched a unique annual Sustainability Challenge. The primary audience is Scouts, their parents, and their units. They learn about their impacts on the planet, take action, measure their progress, and advocate to others – and earn a limited-edition patch.

TAC's next step is top-down, focused on the institution: the adoption of a comprehensive Council Sustainability Action Plan. How will TAC set the gold standard in Scouting by improving human impacts upon the planet <u>at the council level</u>? Our primary audience for this Action Plan is TAC's senior council decisionmakers and leadership. Global inter-governmental and scientific bodies have presented the authoritative science to decisionmakers; it is up to the decisionmakers to decide what action to take, and to do so. The plan places sustainability at the core of our activities, through our planning and execution process, to make our program sustainable for future generations.

Our Scouting program is positive for our families and communities; like most human activity, however, it produces negative impacts on the environment. We can eliminate some harmful impacts by redoubling effort on several of our core beliefs, modifying our activities to use fewer natural and energy resources, avoiding waste, and changing other behaviors. For those negative impacts we can't eliminate, we can engage directly in service activities that reduce our impact, and work with other organizations to invest in their projects that offset

environmental impacts. Finally, we can maximize the many parts of our program that have positive impacts on the environment and set Scouting apart from most other human activity.

TAC will deliver Unparalleled Scouting through our execution of the six Action Areas in this plan. The plan will be one of several lenses through which new council initiatives will be viewed, and will be updated to reflect the positive and negative impacts of new initiatives. It will be under continual review. It will evolve based upon evolutions in our program, advances in science and technology, and the knowledge we gain from implementing our plan.


### 3. TAC's Sustainability Ambitions

→ Refine our administration and delivery to minimize harmful impacts on climate and biodiversity

→ Capitalize on Scouting's core strengths to maximize positive impacts on biodiversity and climate

→ Act as ambitiously as possible without diluting the overall impact of our programs

→ Support selected UN/WOSM Sustainable Development Goals, increasing over time

→ Map all existing and new council initiatives to the plan

## 4. UN/WOSM Sustainable Development Goals

The United Nations defines “sustainable development” as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” In 2015, all UN member states adopted the 17 UN Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet and strive to ensure that all people enjoy peace and prosperity by 2030.

World Scouting (WOSM) is mobilizing all Scouts globally to raise awareness and take action for the SDGs.


TAC’s Sustainability Mission focuses primarily on the 5 SDGs that most directly address human impacts upon the planet:

> SDG 7. Affordable and clean energy: Ensure access to affordable, reliable, sustainable and modern energy for all
>
> SDG 12. Responsible consumption and production: Ensure sustainable consumption and production patterns
>
> SDG 13. Climate action: Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy
>
> SDG 14. Life below water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
>
> SDG 15. Life on land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification

In addition, TAC will choose project-based carbon offsets that will also support individuals and communities in ways that address other SDGs. (See Action Area #1.G)

As a further step, TAC will widen its focus to promote several other SDGs, on which TAC and its leaders and Scouts also have positive impacts. {Note 1}

## 5. Scope of the Plan – What is Included?

Scouting happens mostly at the local level, with families grouped together into **units** that deliver program within the framework of a national curriculum. Units in TAC are grouped by geographic areas into 6 **districts**, where volunteers put together district programs and support units. The districts are grouped together as one **council**, where volunteers and employees put together council programs and support districts and units.

Mayflower

Mediterranean

Edelweiss

Horizon

Charlemagne

Barbarossa

Each of the BSA's 250+ councils is a separate entity, with its own professional and volunteer leadership. The council has both direct and indirect impacts on sustainability: through the actions and decisions of its employees and senior volunteers; the programs that it designs and executes; and the guidance that it offers to districts, units and individuals. Individuals have their own direct impacts, at home, and together at the unit level.

Organizations often categorize their sustainability impacts in three levels: Scope 1 is under their full control; Scope 3 is related to their activity but not under their control; Scope 2 is somewhere in between. This helps determine what actions to take, and how to calculate their impact.

In our plan, *action* is in Scope 1, while *advocacy* is in Scope 3. Here are the Scopes for TAC's activities:

Scope 1 is *Council-level activities*. TAC *controls and executes* these activities, through the actions and decisions of its employees and senior volunteers. These negative and positive impacts are all clearly included. Council camps, council training activities, Order of the Arrow (OA) lodge events, and employee administrative activities are all included.

Scope 2 is *District-level activities*. TAC *strongly influences* the decision-making process and execution of these activities, through coordination among senior volunteers, and guidance to district leaders. The plan specifies what is included in this Scope. District camporees, district training activities, OA chapter events, Merit Badge Universities, and tree-planting projects are included to the extent controlled by district leadership.

Scope 3 is *Unit and individual activities*. TAC can *impact* these activities, via guidance and education.

## 6. Summary of Action Areas

### Reduce Greenhouse Gas Emissions Below Net Zero From 2023 *[15 action items]*

Eliminate avoidable Scope 1&2 GHG emissions by end-2024, through direct action. *Remove significant emissions from travel and food.*

Achieve net carbon negativity in Scope 1&2 activities by end-2022, including direct and indirect offsets (our positive impacts on emissions will exceed our negative impacts). *Offset 1.5x remaining emissions immediately in project-based offsets, while also planting trees to provide direct future offsets.*

Include Scope 3 activities in net zero/negative calculation by 2030.

### Plant a Tree for Every TAC Scout *[10 action items]*

Plant 4,000 trees by TAC's 75th anniversary in 2025, in direct action by TAC families.

### Maximize Planet-Positive Aspects of Core Scouting Program *[21 action items]*

Maximize the use of the many existing BSA program components focused on sustainability – in advancement, service, conservation, and leadership – to combat biodiversity loss and climate change.

### Camp and Run Events Sustainably *[9 action items]*

Leave No Trace – on a global scale, over the long term.

### Reduce Waste and Plastics, and Produce Sustainably *[9 action items]*

"A Scout is Thrifty". Reduce consumption; reuse, repurpose, restore and repair as much as possible of what is consumed; and recycle as much as possible of what is left.

### Advocate for Action by Others *[9 action items]*

Leverage our impact through education and outreach: guide our units and members; guide other BSA councils; advocate for societal and governmental change.

*TAC Sustainability Challenge*
*Journey to Sustainability unit scorecard*

## ACTION AREAS
**Minimizing Negative Impacts; Maximizing Positive Impacts**

### 1. Reduce Greenhouse Gas Emissions Below Net Zero From 2023

A. Objective

Eliminate avoidable Scope 1&2 GHG emissions by end-2024, through direct action.

Achieve net carbon negativity in Scope 1&2 activities by end-2022, including direct and indirect offsets (our positive impacts on emissions will exceed our negative impacts).

Include Scope 3 activities in net zero/negative calculation by 2030.

B. Global Context

Human-caused emissions of greenhouse gases – mainly carbon dioxide and methane – trap part of the sun's heat in the atmosphere, warming the Earth. That is already causing more extreme weather patterns, including more extreme temperatures, increased droughts, heavy rain and floods, stronger hurricanes, melting glacier ice, rising sea levels, desertification of land, and warming and acidification of the oceans. It has led to food and water scarcity for millions, is making major cities near the equator less liveable, and is driving millions to migration. These changes are also the biggest threats to biodiversity, directly and indirectly. We have already caused at least 1.1ºC (2ºF) of warming so far, and at least 1.5 ºC (2.7ºF) of warming is inevitable. We all need to minimize our direct and indirect emissions of greenhouse gases, to halt and reverse the warming after that point.

For more details, see the *Planetary Emergency Primer* in the Appendixes.

C. Strategy

We will not attempt to directly eliminate 100% of our GHG emissions. We can't do that (using current technologies) and continue to deliver on our mission of Unparalleled Scouting. But we can reduce our emissions significantly without diluting our program. We will identify our emissions sources; minimize our emissions through direct action; then plant trees to offset a large portion of our remaining emissions; and also invest in the projects of others to offset more than our remaining emissions. We will progress rapidly from carbon-conscious, to carbon-neutral, to carbon-negative.

We currently hope to reduce Scope 1&2 GHG emissions by 1/5 to 1/4 from our 2019 baseline, by end-2024, before direct and indirect offsets. Our GHG emissions are already modest; and we have already travelled part of the distance to net zero. The many positive impacts of our program on emissions – while very difficult to quantify – are also extremely important. We will continue to seek ways to further reduce our emissions (at least proportionate to our membership).

D. TAC's Main Impacts on GHG Emissions

*To benchmark our impacts, and measure our progress, we use 2019 as a starting point (the last full year of Scouting before Covid restrictions).*

We have 3 significant negative impacts on GHG emissions, in this order:

**Travel** – made by staff (Scope 1), volunteers (Scope 2), and attendees (Scope 3) for council and district camps, activities, training, daily commutes, etc. ("Staff" always includes all TAC employees, plus volunteer staff for a particular event; for instance, a volunteer is Scope 3 if going to Camp Alpine as a unit leader, but is Scope 1 if going there as a Camp Alpine Staffer).

Around 2/3 of our measurable 2019 GHG emissions were related to in-scope travel to our summer camps, the Normandy camporee, Executive Board meetings, and other employee travel. Reductions can be achieved mainly by reducing air miles (aviation fuel currently has no zero-carbon replacement), and then by being more efficient in car miles.

We have some travel impacts that are difficult to reduce – and may even grow – though we will watch them carefully and search for efficiencies. Car travel for regular business by TAC employees has an important but unavoidable impact. Three additional unavoidable travel needs are almost unique to TAC. Senior employees must fly to the US for BSA national meetings and training sessions. Our new Horizon district executive, serving all of the Middle East, Central Asia and Africa, will need to fly to serve the district properly. And our forthcoming Trilogy Camp, a resident camp rotating annually among the Middle East, Central Asia and Africa, will introduce some longer flights for camp staff, especially until a corps of Horizon-based camp staff gain training and experience.

Car travel by individual families (Scope 3) presumably has a large collective impact, as it does in society as a whole, but is not under our control; it will be incorporated into our calculations by 2030.

**Food** – for group meals at council camps and other activities, and if supplied by organizers at district and Order of the Arrow events. Around 1/4 of our 2019 measurable GHG emissions were related to food, mainly in menu choices, also from cooking fuel combustion and food waste. Beef represented well over 1/2 of our food-related 2019 GHG emissions at council summer camps, due to its outsized $CO_2E$ impacts (mainly from digestive emissions of methane, also from land use and transport).

This is our most important area of focus to cut GHG emissions – because the impact of our programs is not diluted by serving Scouts chicken instead of beef, or by occasional meat-free meals. Reductions can be achieved through smarter menu choices and more efficient planning. Meat in Switzerland (home of our largest summer camp) costs 2.1x the European average; thus, reducing meat will also boost socioeconomic inclusivity at camp, by keeping food costs (and fees) lower. Plant-based meat substitutes are now high quality enough to be carried by major burger chains.

**Campfires –** a Scouting tradition at every camping activity (~6% of our measurable emissions). We do not currently propose to reduce this GHG impact, due to the importance of the tradition; but we will maximize the use of firewood that has no negative biodiversity impacts.

We have 2 smaller but measurable negative impacts on GHG emissions, in this order:

> **Shipping –** of program materials to members around TAC's large service area. Our employees have reviewed shipping efficiency in detail, and already concentrate on keeping shipping amounts and costs to a minimum, so it's unlikely that this impact can be substantially further reduced.
>
> **Production –** of unique council and event clothing and collectibles to showcase our mission and raise additional funds.

These additional factors are important, but are not material negative emissions impacts for TAC:

> **Property –** very important for most BSA councils, but not to TAC, as we do not own any office space, campgrounds or other property at the council or district level.
>
> **Electricity and heat** – can be very important for large offices; but TAC's offices are small, and are provided by the Dept of Defense in larger DoD-operated buildings for which individualized energy use figures are not available.

Other areas of negative impact cannot be easily quantified using a standard measure of $CO_2E$ emissions. These include the sourcing of our uniforms, patches, and insignia; and single-use plastics (made from fossil fuels) at events.

Our core Scouting program also has many *positive* impacts on climate and biodiversity, which are very difficult or impossible to quantify, but critically important. (See Action Area #3.) We can also have positive upstream impacts by working with suppliers to reduce the $CO_2E$ produced by sourcing patches and other insignia. (See Action Area #5.)

E. Progress to Date

Travel for meetings: Executive Board meetings have been reorganized in a way that has reduced travel. Through 2019, there were 3 face-to-face meetings per year, with a minority of attendees in the room and the others on audio. From 2021, there are 2 hybrid meetings (with many attendees in the room, and the others on video) and 2 fully-virtual video meetings per year. With fewer face-to-face meetings, and higher quality video meeting technology, Board members can have higher quality meeting experiences with less-frequent travel.

Carbon aside, there are undeniable valuable benefits to in-person meetings, especially for people who usually collaborate at a distance: the serendipity of random side conversations, and the advances made in planned ones; the relationship-building of activities and meals before and after working meetings. That is why hybrid — not fully virtual — meetings are expected to be prevalent post-COVID.

As TAC's geographical spread broadens, and its historical concentration in Germany narrows, physical attendance at council training activities and meetings will be under pressure. Regardless of our sustainability focus, the limiting factor will be people's ability to invest the time away from families, and the monetary cost, in travelling to a different country to pursue their volunteer activity.

Travel for camp: A multi-year agreement was reached with Kandersteg International Scouting Centre in 2021, allowing us to store Camp Alpine summer camp and Klondike Derby winter camp materials onsite year-round. That eliminates the emissions (and time and

cost) of transporting camp materials to and from Switzerland. Similar onsite storage was used at 3 of TAC's past summer camp venues in Germany and Italy; and in-country storage was used at another past summer camp that rotated around sites within the UK.

Food: The traditional Messengers of Peace dinner at the Normandy Camporee has been a chicken-and-seafood paella, with no red meat. Due to the tides, there is no council-provided dinner at Normandy 2022; the fundraising reception plan is sustainability focused.

F. Action Items – Emission Minimization

*All reductions are calculated from 2019 benchmark numbers.*

*Travel:*

Reduce the number of non-Europe based staffers at our Europe-based camps by 1/4, in favor of Europe-based staffers who will not need long-haul flights to attend, by 2024 (~7% of our emissions saved).

Reduce air travel to Executive Board meetings by 1/4 in favor of remote participation, by 2022 (~1% of emissions).

Increase car-pooling to our camps by staffers when on the ground in Europe by 1/4, and/or choose the most fuel-efficient vehicle possible for the trip, by 2022 (~1% of emissions).

Leverage employee air travel to the US for TAC business by coordinating where possible with family visits and multiple visits.

Collect data on car travel by individual families to council and district events (distance travelled and number of passengers), to enable future incorporation of Scope 3 travel into emissions and offset calculations.

Maximize train travel when reasonable given time constraints, to benefit from the negligible emissions of Europe's comprehensive rail network.

Include public transport options in all event details.

*Food (at council events, and if supplied by organizers at district and Order of the Arrow events):*

Switch 1/2 of current beef consumption to non-beef meats by 2022 (~6% of emissions); and switch the remaining 1/2 of beef to non-beef meats by 2024 (additional ~6% of emissions).

Switch 1/2 of current consumption of non-beef meats to plant-based foods by 2022 (disregarding beef shifted to non-beef meats as above) (~4% of emissions).

*Other:*

Continue to seek emissions reductions in shipping and production.

G. Analysis of Financial Offsets

Offsets are activities, direct or indirect, that enable us to reduce the production of or to capture GHG (primarily $CO_2$). If our offsets reduce or capture as much GHG as we emit and cannot eliminate by our Action Items, we will be “net zero” or “carbon neutral”. If our offsets reduce or capture *more* GHG than we emit and cannot eliminate ourselves, then we will be “net negative” or “carbon negative”.

Effective offsets must be additive (reducing or capturing GHG that would not otherwise have been reduced or captured), verifiable, ideally permanent, and economical. Offsets should be used wisely and sparingly, after direct emissions are reduced as much as possible.

Our principal offset will be direct action: planting trees. That is nature-based $CO_2$ removal. (See Action Area #2.)

We will also use indirect financial offsets. Two main types exist. Compliance offsets are generally contracts for legally-allowable $CO_2$ emissions, traded on centralized markets like the EU Emissions Trading Scheme. Project-based offsets generate carbon credits through the emission reduction, avoidance, or removal activities of others. {Note 2}

We prefer project-based offsets. They can actually reduce or avoid emissions or remove $CO_2$ from the atmosphere, unlike compliance offsets. They can limit deforestation and protect biodiversity. Many projects also support individuals and communities in developing countries, in ways that support other SDGs (e.g. by providing communities with forest-friendly and sustainable livelihoods). Projects vary greatly in quality; we will carefully review potential investments for quality, alignment with values, and cost. Some programs are reviewed by independent certification programs.

Project-based offsets offer us the best value on our external investments in climate action. They are currently 5-9x more cost effective per ton of $CO_2E$ than the compliance market, while also enabling us to support several SDGs beyond climate action. {Note 2}

After reducing our GHG emissions through our Action Items, we will purchase project offsets *exceeding* the remainder of our GHG emissions *before* accounting for the eventual GHG offset of the trees we plant. We will over-offset for several reasons: to be net carbon negative as soon as possible; to support other SDGs; to cover part of our Scope 3 emissions; and to cover Scope 1&2 emissions that we haven’t been able to calculate. We currently expect the total cost of those voluntary offsets to be a few thousand dollars per year in the near term, though costs may rise over time.

H. Action Items – Financial Offsets

Choose project-based offsets, not compliance offsets.

Choose offset projects that support selected SDGs, while also removing carbon from the atmosphere or reducing future emissions.

Offset 1.5x of our calculated GHG emissions, after including impacts from minimization, but before including impacts from tree planting (at least until a significant number of our trees reach maturity).

Carry out due diligence before choosing offsets, to ensure that the projects are additive, high quality, and fully aligned with our values.

Annually review offset projects previously funded, choose offset projects to fund in the coming year, and calculate the offset financial requirement for the coming year. These determinations will be made by the Sustainability Committee.

## 2. Plant a Tree for Every TAC Scout

A. Objective

Plant 4,000 trees by TAC's 75th anniversary in 2025, in direct action by TAC families.

B. Global Context

Trees capture (sequester) $CO_2$ out of the atmosphere. Major tree-planting initiatives are being carried out, or have been endorsed, by many public and private organizations, such as the Trillion Tree Initiative. Tree planting can also combat biodiversity loss, with proper tree selection; combat deforestation; and improve air quality and living conditions.

C. Strategy

Tree planting is a natural reflection of Scouting's core strengths in community service and conservation. It's an ideal sustainability project for participation by everyone in TAC. All ages can participate.

Our youth will be able to look back and say: "here's where I helped". A tree planted by a Scout plants two seeds: one in the ground; and one in the heart of the Scout, to grow a new advocate for the planet.

By planting 4,000 trees, we will eliminate approx. 4,000 tons of $CO_2E$ over the life of the trees, offset our unavoidable Scope 1&2 emissions, improve biodiversity, and create a legacy of service to our environment.

Initially, the $CO_2$ capture of our trees will be minor (less than 1 ton of $CO_2E$, assuming 100 trees planted in 2022). Our positive impact will increase with the age & number of trees. In 15 years, our trees should be offsetting an amount of $CO_2$ roughly equivalent to our current program-related emissions in Scopes 1&2. The trees we plant will only capture $CO_2$ during their lifetimes, so TAC will need to plant another tree per Scout before its $100^{th}$ anniversary.

Our choices of what and where to plant will combat biodiversity loss and fit local environments. Hedges – a line of closely spaced small trees – in TAC's temperate regions provide habitat for an array of small animals in human-inhabited environments. Mangroves in TAC's tropical regions support coastal ecosystems. Our enormous geographical and environmental dispersion ensures that we will not plant just one type of tree in one area. Carbon is stored primarily in the trunk, branches and roots, so larger trees have a bigger climate impact; but any type of tree or shrub is beneficial.

D. Action Items

Track the number of trees, of any type and size, planted anywhere by TAC families starting in 2020.

Actively encourage district and unit tree planting projects.

Maintain and distribute materials on best practices for tree planting projects, including focuses on $CO_2$ capture, biodiversity, local rules, and local environments.

Help link districts to local/national organisations that provide saplings and arrange opportunities.

Seek external funding, to enable tree planting projects and other aspects of this Action Plan. Focus financial support on units that can't locally afford to participate in projects.

Analyze the biodiversity impacts of the trees planted, where possible.

Report periodically on the number of trees planted, in an attention-capturing manner.

Track placement of trees planted, by maintaining a Google map or similar tool.

Calculate $CO_2$ capture conservatively, as not all planted saplings will survive to maturity.

Other BSA councils can and should follow up on the trees they plant, to see if the trees are being eaten by wildlife or drying out. That is best practice – but TAC can't do that, because of our geographic dispersion.

## 3. Maximize Planet-Positive Aspects of Core Scouting Program

A. Objective

Maximize the use of the many existing BSA program components focused on sustainability – in advancement, service, conservation, and leadership – to combat biodiversity loss and climate change.

B. Global Context

Scouting organizations are uniquely suited for sustainability action: our core activity is at the member level, and our core activity and mission includes care for the planet. In contrast, many conservation-focused non-profits have their core activity at the staff level, and use "membership" primarily for fundraising and passive advocacy; and many other organizations support conservation and sustainability efforts as a sideline, but have their core activity in other fields. We can maximize positive impacts on the planet by following our core program.

C. Main Planet-Positive Aspects of TAC's Core Scouting Program

Sustainability is at the core of Scouting. All BSA councils share these same mandatory or optional BSA program components, even if they don't have a formal sustainability mission or policy:

- The Outdoor Code (rank requirement at every Cub level, Scout and Tenderfoot)
- Leave No Trace principles (requirement at every Cub level and Second Class)
- Sustainability Merit Badge (an Eagle-required alternative); includes climate change, species decline, waste, energy, water, food, etc
- Environmental Science Merit Badge (the Eagle-required alternative to Sustainability)
- Many other Merit Badges focused on love for the natural world: Energy; Fish and Wildlife Management; Forestry; Nature; Oceanography; Plant Science; Soil and Water Conservation
- Many other rank requirements focused on love for the natural world: identify wild animals (Second Cl); identify native plants (First Cl); investigate an environmental issue (First Cl); reduce/recycle/repurpose trash (First Cl); Tread Lightly principles (First Cl); conservation service hours (Life)
- Outdoor Ethics Guide position of responsibility for Scouts (meets requirements for Star, Life and Eagle)
- Service projects by Scouts and units very often focus on conservation, even when not required to do so
- Distinguished Conservation Service Award for Scouts
- Adult leadership training as Leave No Trace Trainers, LNT Master Educators, and Distinguished Conservationists

The core tenets of BSA Scouting are equally important for this mission:

- The Scout Oath – Duty to God: The heads of many world religions have emphasized the critical spiritual importance of caring for creation {Note 3}
- The Scout Oath – Duty to country: National governments in the US and around the globe have recognized the critical importance of action to combat climate change and biodiversity loss, and are encouraging participation from all citizens
- The Scout Oath – Help other people at all times: Climate change impacts everyone, with the largest impacts on the poor and on developing countries
- The Scout Law – A Scout is thrifty: See Action Area #5

Teaching sustainability leadership leverages our efforts to make our world a better place: learned skills become lifetime behaviours, and positively influence society beyond Scouting.

D. Progress to Date

Leave No Trace Trainer courses are being provided regularly. Relevant Merit Badges are being earned, but with much room for improvement. Data is in the Appendixes. {Note 4}

E. Action Items

Unit action points:

- Outdoor Code recited at every troop and pack meeting, after Scout Oath/Law
- Outdoor Ethics Guide youth position of responsibility actively filled in every troop
- Sustainability Coordinator youth position created (as a Scoutmaster-approved leadership project) and filled in every troop
- Merit Badge Counsellor positions for Sustainability and Environmental Science merit badges actively filled in every troop
- Meetings planned in every troop using Sustainability program feature in *Troop Leader Resources*
- Cub den discussions and actions planned on sustainability themes
- Service projects planned with a sustainability focus
- Sustainable camping plans adopted in each unit
- Scouts engaged in actively finding solutions at every point

District action points:

- Sustainability merit badge: required offering at every Merit Badge University; incentivize Scouts to earn the badge even if they don't need it for Eagle
- Encourage Eagle service projects with a sustainability focus
- Encourage Order of the Arrow lodge service projects with a sustainability focus
- Encourage unit participation in Earth Day activities, and adoption of parks/highways/meeting areas
- Support local Sustainability projects with local positive effects, to gain local publicity/awareness
- Encourage earning of Distinguished Conservation Service awards

Council action points:

- Create and distribute Sustainability Coordinator position description
- Gather and distribute ideas for sustainability-focused service projects, with special focus on biodiversity
- Grow corps of Leave No Trace Trainers, LNT Master Educators, and Distinguished Conservationist award counsellors
- Utilise BSA STEM/NOVA program for training
- Encourage Wood Badge tickets to drive the Sustainability mission
- Leave No Trace principles to become a minimum, not an aspiration, for every Scouting activity, not just for backcountry activities

## 4. Camp and Run Events Sustainably

A. Objective

Leave No Trace – on a global scale, over the long term.

B. Main Camping and Event Impacts on Sustainability

The 7 principles of Leave No Trace provide a widely-known framework of minimum impact practices for outdoor activity: plan ahead and prepare; travel and camp on durable surfaces; dispose of waste properly; leave what you find; minimize campfire impacts; respect wildlife; be considerate of other visitors. Leave No Trace focuses narrowly on the ground covered, and on the other life directly encountered there. Sustainable camping takes a broader view, including impacts on climate and on biodiversity beyond the immediate area.

The main front-country camping impacts on sustainability are: Transport, Menu design, Cooking, Campfires, Waste, Trash, and Cleaning. Campsite is an added impact for back-country camping.

C. Progress to Date

The home of Camp Alpine, the Kandersteg International Scouting Centre (KISC) in Switzerland, has a highly-developed sustainability approach, in recycling, water use, energy, and other areas.

Sustainable camping guidance included in the Event Guide for the 2022 Normandy Camporee, distributed to all registrants; focused on transport, menu design, and waste.

Edelweiss District Sustainability Camporee held 2021.

Sustainable camping presentation delivered at 2020 TAC Scouters Virtual Conference.

Sustainable camping guidance prepared and circulated by TAC to districts in 2020, covering all 7 main areas of impact.

Sustainability in Action campout guidance prepared by Vienna unit in 2020, setting a high standard for minimizing non-recyclable garbage: 3kg total for 32 people on a 3-night campout.

D. Action Items

*For action on transport and menu design at our camps and events, see Action Area #1.*

Guidance: Further develop sustainable camping guidance, and circulate widely to units, and in website resources.

Locations: Maximize use of venues that incorporate sustainability into their operating model. Prioritize use of SCENES (Scout Centres of Excellence for Nature and Environment) identified by WOSM, many of which are in TAC territory, including KISC.

Acquisitions: Equipment needing to be acquired should be suitable for multiple events and uses, whenever possible.

Transport: Consider location of district and council events to facilitate lower-impact travel.

Menu design: Create sample great low/no meat camping menus, with cooking methods, to inspire units and individuals. Incentivize unit action at district camporees, with competitions and awards.

Campfires: Maximize use of firewood with no negative biodiversity impacts: wood felled naturally for forest management, not specifically for burning; or scrap lumber.

Waste: Focus on deep waste minimization, including detailed planning before the camp or event, and recycling at camp, leaving camp with just a small bag of waste. Maximize use of local recycling.

Trash: Incentivise sorting and recycling by units at district events, and packing trash out.

Service: Explore annual TAC emission-reduction service projects at KISC, and/or at Gilwell Park in the UK – both founded as Scouting campsites by Robert Baden-Powell.

## 5. Reduce Waste and Plastics, and Produce Sustainably

“Stop waste. Stop waste of any kind. Stop wasting energy, stop wasting food, stop wasting plastic and stop wasting time.” - David Attenborough

A. Objective

“A Scout is Thrifty”. Reduce consumption; reuse, repurpose, restore and repair as much as possible of what is consumed; and recycle as much as possible of what is left.

B. Global Context

Global waste generation is increasing faster than any other environmental pollutant. Effective waste management and reduction could cut 15-20% of GHG emissions globally. Food production impacts climate (through emissions) and biodiversity (through deforestation and monoculture), but ~1/3 of all food is lost or wasted; food waste decay releases methane. Plastic is produced with fossil fuels; the most commonly used types don’t go away, but just break down into ever-tinier pieces known as microplastics. Plastic waste makes up 90% of the trash in our oceans, and is reaching every corner of the oceans, damaging marine life throughout the food chain up to humans. {Note 5}

C. TAC's Main Impacts on Waste Reduction and Sustainable Production

We aim to reduce/reuse/recycle in all of our activities, from our offices to our camps.

This is a key area for unit and individual (Scope 3) engagement. Service projects can focus on trash pickups (see Action Area #3); trash pickups on water and land don't decrease the use of plastics, but decrease the impact of plastics on the environment. Reduction and recycling of waste is part of sustainable camping (see Action Area #4).

This is also a key area for *upstream impacts*, in council purchasing. We as consumers can affect what is going on above us in the supply chain, in our purchasing choices and our active engagement with suppliers. If we can change supplier practices, that can dwarf anything that we do with our choices as a council, or as a collection of individuals.

D. Progress to Date

Patches: We worked with the BSA's biggest licensed patch provider, Class B, to make our TAC Sustainability Challenge 2021 patch as sustainable as possible. After 4 months of effort sparked by our request, Class B announced that they would shift their entire production of embroidered BSA patches to 100% recycled plastic backings during 2021, and migrate production to 100% recycled polyester threads as current stocks are depleted. This is a tremendous step: having such a meaningful upstream impact, in such a short period of time, is very encouraging and inspiring. {Note 6}

Clothing: We are exploring recycled clothing options for all our council camp items.

Shipping: In 2021, our office and program supply center switched from plastic to paper mailing envelopes, paper packing tape, and shredded cardboard filler.

Normandy Camporee 2022: Fundraising reception catering specified to minimize single-use products, and food waste.

E. Action Items

Food: Order food for council events carefully, to minimize waste. (Keep in mind that plant-based foods are often wasted at much higher rates than meat, due to cost.)

Plastic: Use plastic only if it's the only reasonable alternative, for council activities,

Waste: Target minimal total waste, and minimal non-recycled waste, at council activities, and encourage similar approaches by districts and units. Track progress over time.

Shipping: Search for shipping vendors that offset their emissions.

Production: Encourage key suppliers and vendors to adopt new sustainable practices, environmentally and socially. Encourage apparel and equipment suppliers to use recycled materials where possible in production.

Production: Minimize dating of event clothing and patches, for later use of excess inventory.

Clothing:  Encourage re-use of Scout uniforms, by collecting uniforms that Scouts have grown out of or no longer use at the end of the school year, and offering them to new Scouts at fall registration.

Equipment: Encourage reuse of equipment via annual swap meets.

Deforestation: Review the practicality of making an effective Zero Deforestation Commitment, to achieve a deforestation-free supply chain, for possible future action.

## 6. Advocate for Action by Others

A. Objective

Leverage our impact through education and outreach: guide our units and members; guide other BSA councils; advocate for societal and governmental change.

B. TAC's Main Impacts on Action by Others

Guiding units and members in sustainable living practices: activity guidelines; annual programs; and encouragement to impact their communities.

Normandy Camporee participants are a particularly important target audience for advocacy on sustainable camping, and on sustainable Scouting in general: because they come from many BSA councils and other national Scout organizations to where they can spread our message; and because of the large number of people involved and the large number of places from which they travel.

C. Progress to Date

TAC Sustainability Challenge 2021 launched in spring 2021. The Challenge comprises fun and enlightening activities for units, youth and families in all programs, in the categories of waste, food, energy, biodiversity, service, and education. They learn about their impacts on the planet, think about what actions they can take, take action, measure their progress, and advocate to others. A limited-edition patch is available for those who complete the Challenge. Costs are borne by participants. Impact scales directly with the number of participants. The challenge aims to reduce GHG emissions and waste while promoting biodiversity and creating advocates for good sustainability practices.

Sustainability Challenge session presented at council virtual summer program 2021.

Edelweiss District "Mission Sustainability", a district-wide challenge to all units, with phases focusing on home and unit, community, and district; spring 2020 - summer 2021.

D. Action Items

Create and distribute an annual Journey to Sustainability (JTS) scorecard for units, echoing the BSA's Journey to Excellence (JTE). JTS to be based on, or fully mapped to, the annual Unit Sustainability Challenge. Activity at the unit level, with district-level consolidation by commissioners, and inter-district competition. Establish bronze-silver-gold award levels. Publicize unit achievements often in social media.

Release new Sustainability Challenge each year, fine-tuning requirements, and engaging people annually instead of just once.

Offer Sustainability Challenge sessions annually at youth and adult council and district events.

Challenge the Order of the Arrow Black Eagle Lodge to sustainability excellence.

Advocacy by youth via Scout action in the Citizenship in the Community/Nation merit badges, and via Cub action in advancement and pack activities.

Advocacy by units within their own chartered organizations, and in their local communities.

Guide other BSA councils in gold-standard sustainable Scouting practices.

Advocate with other national Scout organizations in TAC's area, which can then advocate most effectively in their local communities.

Advocate for governmental change by council outreach.

# APPENDIXES

## 1. Definitions

*Anthropocene Age:* The word Anthropocene comes from the Greek terms for “human” and “new”. Our species, Homo sapiens, has had a lasting – and in some cases already irreversible – influence on Earth’s systems, environment, processes, and biodiversity. The Earth is 4.5 billion years old, and modern humans have been around for only 200,000 years. Yet in that time – and especially in the past 60 years – we have fundamentally changed the physical, chemical, and biological systems of the planet. Geologists still debate whether these changes are enough evidence to declare a new formal geological “epoch”, but the term is widely used among natural historians to describe the age in which we now live.

*Biodiversity:* The word biodiversity is a contraction of “biological diversity”. It refers to the volume and variety of all animal and plant life on Earth, and to how different species of animals and plants interact with each other and with the physical world around them. It can be affected at the individual species level; and at the level of the particular communities, or ecosystems – oceans, forests, deserts, ice caps and even cities – within which all living things exist.

*Carbon dioxide equivalent ($CO_2E$)*: Greenhouse gas (GHG) emissions are generally measured in tons of carbon dioxide equivalent ($CO_2E$), a way of measuring an object or action’s overall contributions to global warming that includes all GHGs.

*Carbon footprint:* The best estimate amount of GHG, measured in tons of $CO_2E$, caused to be emitted directly or indirectly by an individual or organization over the course of a year. “Carbon” is often used colloquially as a shorthand for all GHG emissions. Average carbon footprints of individuals are as follows: 7 tons world average, 13 tons average Briton, 21 tons average American.

*Carbon neutrality*: This is achieved when an individual or organization’s positive impacts on $CO_2$ emissions (sometimes including other GHG emissions) equal their negative impacts. This is essentially another way of saying “net zero”. We use the term “net zero” as it is used by the IPCC.

*Fossil fuels*: Coal, crude oil, and natural gas are called fossil fuels because they were formed from the fossilized, buried remains of plants and animals that lived millions of years ago. They are composed of carbon and hydrogen.

*Greenhouse gases (GHG)*: Gases that trap part of the sun’s heat in the atmosphere, stopping it from escaping into space – like the glass of a greenhouse. The most prevalent and important GHG by far is carbon dioxide ($CO_2$). Methane ($CH_4$) is 87x more potent as a GHG than $CO_2$ over a 20-year period, but is much shorter-lived in the atmosphere and less common. Other GHGs released in smaller quantities, but even more potent, include nitrous oxide and refrigerant gases. $CO_2$ and $CH_4$ in small quantities are a normal part of human, animal and plant life; but in the massive quantities emitted into the atmosphere by human activity, they are powerful pollutants.

*Greenhouse gas (GHG) emissions*: Human-caused releases of GHGs into the atmosphere. The primary reason is the burning of fossil fuels. Other important reasons include agriculture – especially the raising of animals for food – and waste.

*Net zero emissions*: This is achieved when levels of GHG in the atmosphere do not increase overall because of an individual or organization’s activity, because their actions

remove at least as much GHG from the atmosphere as they add. It includes both direct and indirect impacts. These impacts are measured on a current basis over a specific period (one to several years), not as historical totals.

*Offsets*: Activities, direct or indirect, enabling us to reduce the production of or to capture GHG in an amount matching some or all of our emissions that we cannot eliminate.

*Tons of $CO_2$:* A cube 8-1/4 metres (27 feet) on each side will hold a metric ton of $CO_2$. In this plan, all $CO_2E$ calculated by TAC is stated in "short tons" of 2000 lb / 907 kg. Minimization numbers are routinely cited in the literature in slightly-larger metric tons of 1000 kg – so the impact of any rounding is positive for the planet.

*Transatlantic Council BSA (TAC):* The regional grouping, or council, of the Boy Scouts of America (BSA) serving BSA Scouts across Europe, the Middle East, Central Asia and Africa. The BSA has 250+ councils; TAC is one of three fully dedicated to serving youth living outside the USA.

*UN Sustainable Development Goals (SDGs):* In 2015, all UN member states adopted the 17 UN SDGs, a universal call to action to end poverty, protect the planet and strive to ensure that all people enjoy peace and prosperity by 2030.

*World Scouting (WOSM):* The World Organization of the Scout Movement is the largest international Scouting organization. WOSM comprises 172 national Scout organizations (NSO), with a total of over 50 million participants. The first NSO, the United Kingdom Scout Association, was founded in 1907; the Boy Scouts of America was founded in 1910.

## 2. Calculations and Assumptions

A. Approach

To arrive at this Action Plan, we carried out the following steps:

1. Identify and (where possible) quantify TAC's negative and positive impacts on climate and biodiversity, benchmarked to 2019 (the last full year of Scouting before Covid restrictions)
2. Determine plans to minimize negative impacts by the end of 2024 (5 years after the benchmark) and beyond
3. Determine plans to maximize positive impacts by the end of 2024 and beyond
4. Determine plans to offset negative impacts which cannot be eliminated, using the most effective & economical measures possible

B. Summary of top-level calculations

*All numbers rounded, subject to refinement, and subject to change over time.*

112 tons of total measurable Scope 1&2 $CO_2E$ emissions in 2019

Remove 10 tons from travel, and 17 tons from food (24% of total emissions)

Offset 85 remaining tons x 1.5 multiplier = 128 tons immediately in project-based offsets, while also planting trees to provide future direct offsets as the trees mature.

C. Summary of calculations of Scope 1&2 emissions, in tons $CO_2E$ (2019 benchmark)

Grand total emissions: 112

Travel for council activities: total 73.2. Of which, camps 45.5, Executive Board meetings 5.1, other employee air travel 9.2, other employee road travel 13.4.

Food consumption and preparation at council activities, and if supplied by organizers at district and Order of the Arrow activities: total 30.1. Of which, 16.9 beef consumption, 12.4 other food consumption, 0.9 preparation.

Campfires: 6.2

Shipping: 1.5

Production of goods: 1

Property: N/A

D. Assumptions

Air travel: 500-mile flight = 0.13 tons $CO_2E$ per passenger. That multiplier would be doubled for short-haul flights, but most TAC flights are (fittingly) transatlantic. Flights for camp staff travelling from the USA to Europe are only included one way, on the assumption that they made additional European stops on their trip rather than flying directly in and out for camp.

Road travel: 250-mile drive in average petrol/gasoline-fuelled vehicle = 0.07 tons $CO_2E$ per vehicle.

Train travel: Eurostar train trip emissions are negligible.

Food: Beef consumed at council and district camps and activities is assumed to come 1/2 from dairy herds and 1/2 from beef cattle herds – currently a common proportion in European countries – apart from Camp Alpine where beef is known to be sourced from a local dairy herd. Dairy co-products give beef from dairy herds a lower carbon footprint (21 kg $CO_2E$ per kg of beef consumed) than beef from dedicated beef herds (60 kg $CO_2E$ per kg of beef consumed). To the extent more of our current beef consumption comes from beef herds, our 2019 emissions would be greater, and the reductions achieved by our action items would also be greater.

Campfires: 2.5 tons $CO_2E$ per cord of wood burned (3.6 $m^3$). 3.1 cords burned in total.

District events: Staffers sourced locally, not travelling long distance. Lunch supplied by organizers for one small event per year, and a “cracker barrel” (post-dinner snack) supplied for one camporee per year. Emissions uniform across districts. Camporee meal food chosen and supplied by units or individuals.

Order of the Arrow events: Staffers sourced locally, not travelling long distance. Food supplied by organizers for 4 Lodge (council) weekend events per year, and 6 Chapter (district) events per year.

Trees: Average of 1 ton of $CO_2E$ captured per tree over its lifetime, or an average of 50lb of $CO_2E$ per year over its lifetime. These are conservative estimates, using an average lifetime of 40 yrs. A tree's ability to capture $CO_2$ increases with age and weight; it also varies with the type of tree, and its environment. Initial $CO_2$ capture following planting is small, requiring the use of larger indirect offsets initially, declining as the trees grow.

## 3. Endnotes

Core resources

A. TAC Sustainability Resources: tac-bsa.org/sustainability/

B. Sustainable Development Goals UN/WOSM: sdgs.scout.org

C. *Intergovernmental Panel on Climate Change (IPCC):* The United Nations body for assessing the science related to climate change, established in 1988. It has 195 member states, all of which approve the texts of the IPCC's released Assessment Reports. The IPCC's 6th Assessment Report (AR6) cycle is from 2015-2022; it comprises final reports from three working groups, plus three special reports published in 2018-19. Working Group 1 (the physical science basis) published its final report in August 2021; it has 234 authors from 66 countries plus 517 additional contributing authors, incorporates over 14,000 cited references, and reflects 78,000 expert and government review comments.
IPCC 6th Assessment Report, the Physical Science Basis, August 2021:
https://www.ipcc.ch/report/ar6/wg1/#SPM

D. *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES):* An independent intergovernmental body often described as the "IPCC for biodiversity". It provides policymakers with objective scientific assessments regarding the planet's biodiversity, ecosystems and the contributions they make to people, as well as the tools and methods to protect and sustainably use these vital natural assets. Its 2019 Global Assessment was agreed by the 132 participating governments; it has 145 authors from 50 countries plus 310 additional contributing authors, is based on the review of about 15,000 scientific and government sources, and also draws on indigenous and local knowledge.
IPBES Biodiversity Report, May 2019:
https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/

E. The "Anthropocene" website of the Natural History Museum (London):
https://www.nhm.ac.uk/discover/anthropocene.html

Notes in text

Note 1: The SDGs which TAC may promote in its wider focus include the following:

> SDG 4: Quality education: Scouting, as one of the world's leading educational youth movements, contributes non-formal education empowering youth to develop their full potential.
>
> SDG 5: Gender equality: Welcoming girls into all TAC programs.

SDG 11: Sustainable cities and communities: Training Scouts to drive development of a more efficient and less harmful built environment.

SDG 16: Peace and justice; strong institutions: Citizenship in the Nation/World/Society Merit Badges.

Note 2: Purchasers of compliance offsets are primarily companies required to comply with legal caps on annual $CO_2$ emissions from production of goods or services, or by financial intermediaries. Investors in offset projects are generally individuals, companies and organizations like ours seeking to meet climate goals. Project-based offsets are relatively inexpensive because they are unstandardized and illiquid, unlike market-traded emissions certificates; and because small amounts of financing can have huge impacts in low-income developing countries, where a little bit of philanthropy goes a long way. See the "Biodiversity Loss" section in the *Planetary Emergency Primer* for discussion of the benefits of supporting indigenous peoples and local communities in this manner, thereby supporting UN SDGs.

Note 3: See for example the unprecedented September 2021 joint statement by the Pope of the Catholic Church, the Ecumenical Patriarch of the Eastern Orthodox Church, and the Archbishop of Canterbury of the Anglican Communion, *A Joint Message for the Protection of Creation*: "[A]s leaders of our Churches, we call on everyone, whatever their belief or worldview, to endeavour to listen to the cry of the earth and of people who are poor, examining their behaviour and pledging meaningful sacrifices for the sake of the earth which God has given us… The concept of stewardship – of individual and collective responsibility for our God-given endowment – presents a vital starting-point for social, economic and environmental sustainability… We repent of our generation's sins… Each of us, individually, must take responsibility for the ways we use our resources… Together, on behalf of our communities, we appeal to the heart and mind of every Christian, every believer and every person of good will… All of us – whoever and wherever we are – can play a part in changing our collective response to the unprecedented threat of climate change and environmental degradation. Caring for God's creation is a spiritual commission requiring a response of commitment. This is a critical moment."

Note 4: Leave No Trace Trainer courses provided: 4 courses, 40 total participants. Merit Badges awarded 2019: Sustainability – 41; Environmental Science – 90; Oceanography – 52; Soil and Water Conservation – 38; Fish and Wildlife Management – 22.

Note 5: Food waste accounts for 1.3 billion tons/year of GHG emissions. Plastic production accounts for 850 million tons/year of GHG emissions. The amount of sizeable plastic in the oceans is equal to about 46,000 pieces per square mile.

Note 6: Class B sustainability update: https://www.classb.com/patch-sustainability-update/.

## 4. Planetary Emergency Primer

### A. Introduction

*Is this a problem for me, or for my children or grandchildren?*

These are current crises, not future problems. Discussions of climate change and biodiversity loss have moved from fortune-telling to news-reading. The past 2 years alone have seen epic heatwaves, droughts, wildfires, floods, and hurricanes, on scales never before recorded. This is not only about the world that we will leave to our grandchildren; it is also about the world we are living in now, and what it will be like soon.

The planet is not “other” to us. This isn’t about “saving the planet” for some abstract reason – it’s about helping ourselves. These are not problems for other people, other times; it’s about us, now – not them, then.

July 2021 was the hottest month on record; it will likely be one of the coolest Julys for the rest of the century and beyond. Here are just a few of the impacts around the TAC area in the past 2 years, each unprecedented in scale and destruction:

- Flooding: Germany, Belgium, France, Netherlands, Switzerland, African Sahel, UK
- Wildfires: Greece, Spain, Portugal, Morocco, Turkey, Russia
- Extreme heat: Middle East, Spain
- Power shutdowns, water shortages: South Africa
- Tornados: Switzerland
- Snowfall: Spain
- Melting glaciers: Switzerland (2% vol loss/year), Scandinavia

### *Who says we should act?*

Whether you take your cues from government, finance, commerce, science, religion, or the military, the voices are clear:

- **National governments**: The IPCC has 195 member states, all of which approve its reports. Governments of all political stripes have legislated national net zero emissions targets. The European Union targets cutting GHG emissions 55% by 2030
- **Religious leaders**: “A Joint Message for the Protection of Creation” was issued by the global leaders of the Catholic Church, Eastern Orthodox Church, and Anglican Communion {Note 3}
- **Financial leaders:** Central banks around the world; all of the top 10 global insurers & re-insurers; and asset managers investing $40 trillion worth of asset for others
- **Major corporations**: At least 1/5 of the world’s largest public companies have already committed to net zero targets
- **Scientists**: Action is urged by 34 national science academies, and the international council of academies of science. The 2021 IPCC report has 751 authors or contributing authors; the 2019 IPBES report has 455 authors or contributing authors *{Core resources C, D}*
- **Military:** The US Dept of Defense – TAC’s most important chartered organization and source of membership and leadership – has identified climate change as a top threat to its bases and mission

### *Is this about pollution?*

To a great extent, but not completely. GHGs are major pollutants. Plastics are major pollutants. People have shown great interest in reducing pollution, especially since the 1970s; that interest must be turned to these broader problems as well.

### *Is it too expensive to act?*

Acting now means saving money overall. The question is not whether we will pay the financial price – it’s about when, and how much: less now, or more later. The costs of climate change will continue to increase, as will the costs to slow, halt and reverse it.

Biodiversity brings huge economic benefits to humanity, and its loss also has direct economic costs.

## B. Climate Change

*What is causing climate change?*

*This and the following section are based primarily (though not exclusively) on the August 2021 IPCC report and the related press release, and quote heavily from those sources. {Core resource C}*

**It is unequivocal that human influence has warmed the atmosphere, ocean and land, at a rate that is unprecedented in at least the last 2,000 years**. That has caused widespread and rapid changes throughout the globe. The evidence is clear that $CO_2$ is the main driver of climate change, even as other GHGs and air pollutants also affect the climate. Every ton of $CO_2$ that we emit adds to global warming.

**Emissions of GHGs from human activities are responsible for around 1.1°C (2ºF) of warming since 1850-1900. Global temperature is expected to reach or exceed 1.5°C (2.7ºF) of warming averaged over the next 20 years, and will continue to increase until at least 2050, regardless of any actions we take**. **Unless there are immediate, rapid and large-scale reductions in GHG emissions, limiting warming even to 2°C (3.6ºF) will be beyond reach**. In the worst-case scenarios, where the world does little to reduce emissions, we could see warming of 3-6°C by 2100.

**The good news is that human actions still have the potential to determine the future climate. Stabilizing the climate will require strong, rapid, and sustained reductions in GHG emissions, and reaching net zero $CO_2$ emissions**. Limiting other GHGs and air pollutants, especially methane, could have benefits both for health and the climate, and benefits for air quality would come quickly. It could take 20-30 years to see global temperatures stabilize, even with that action. But **reaching net zero emissions could even bring warming back slightly under 1.5°C after 2050.**

Our understandings are much clearer now than in the past, due to improved observational data, and improved understanding of the response of the climate system to human-caused GHG emissions. Computer models have improved, and there is much more computer power to run them faster and with more data. There have also been major advances in attribution – understanding the role of climate change in intensifying specific weather events.

*What has already happened because of that warming, and what will happen in the future if we don't act?*

Climate change is already affecting every region on Earth, in multiple ways. Many of the changes observed in the climate are unprecedented in thousands, if not hundreds of thousands of years; some of the changes already set in motion—such as continued sea level rise—are irreversible over hundreds to thousands of years.

The changes we experience will increase with additional warming. In the coming decades climate changes are expected to increase in all regions. For 1.5°C of global warming, there will be increasing heat waves, longer warm seasons and shorter cold seasons. At 2°C of global warming, heat extremes would more often reach critical tolerance thresholds for agriculture and health.

But it is not just about temperature. Climate change is bringing multiple different changes in different regions – which will all increase with further warming. (These effects have become much clearer over time – which is why we talk now about "climate change" and not just "global warming".) These include **changes to wetness and dryness, to winds, snow and ice, coastal areas and oceans**. For example:

- Climate change is intensifying the **water cycle**. This brings more intense **rainfall** and associated **flooding**, and more intense **drought** in many regions. Increased drought leads to increased **wildfires**.

- Climate change is affecting **rainfall patterns**. In high latitudes, rain is likely to increase, while it is projected to decrease over large parts of the subtropics. Changes to monsoon/typhoon/hurricane intensity are expected, which will vary by region.

- Coastal areas will see continued **sea level rise** throughout the 21st century, contributing to more frequent and severe coastal **flooding** in low-lying areas and coastal **erosion**. Extreme sea levels that previously occurred once in 100 years could happen every year by the end of this century.

- Further warming will amplify the **melting of ice and snow**, and the thawing of frozen areas: permafrost thawing, loss of seasonal snow cover, melting of glaciers and ice sheets, and loss of summer Arctic sea ice. Melting of mountain and polar glaciers for decades or centuries is already almost certain.

- Changes to the **ocean**, including warming, more frequent marine heatwaves, ocean acidification, and reduced oxygen levels have been clearly linked to human influence. These changes affect both ocean ecosystems and the people that rely on them, and they will continue throughout at least the rest of this century.

- For **cities**, some impacts may be amplified, including heat, flooding from heavy rainfall, and sea level rise in coastal cities.

Changes are happening more quickly now than even in the recent past. For example, the rate of sea level rise has doubled since 2006.

### *What are governments doing already, and is it enough?*

*This summary is based primarily on the 17 September 2021 UN Framework Convention on Climate Change report and the related press release.*

Under the 2015 Paris Agreement, 191 countries have set a goal of keeping temperature increases well below 2ºC – ideally 1.5ºC – by 2100. Each has filed a plan on what it intends to do to help meet that goal. **The current plans of all countries taken together imply an increase in global GHG emissions in 2030 of about 16% compared to 2010. That may lead to a temperature rise of about 2.7ºC by 2100.**

For the 113 countries with new or updated plans, GHG emissions are projected to decrease by 12% in 2030 compared to 2010. But limiting increases to 1.5ºC requires a reduction of $CO_2$ emissions of 45% by 2030; and even limiting increases to 2ºC requires a 25% reduction by 2030. 70 countries have indicated carbon neutrality goals around mid-century.

All these numbers and outcomes assume that all countries will deliver on their pledges – an assumption for which there is currently no reasonable basis, given past actions. It will only be achieved with strong, sustained domestic social, economic and political support.

Countries are improving plans for both emissions reduction and adaptation to the new climate, and introducing longer-term goals, carbon neutrality, national planning processes, and alignment with UN SDGs. But it is not nearly enough.

*These temperature increases sound small – why are they such a big problem?*

- Almost every country in the world apart from the US uses the Celsius scale, so it is used in all global climate science. Degree differences in Celsius sound smaller to American ears than those in Fahrenheit. 1.1ºC = 2ºF; 1.5ºC = 2.7ºF; 2ºC = 3.6ºF.
- The increases are global mean averages. Increases are not evenly distributed around the earth. Land areas warm more than oceans, and the poles warm more than the tropics. Urban areas are usually warmer than their surroundings.
- Climate impacts are not linear with temperature changes. For example, every 1ºC of warming allows the air to hold about 7% more water; but that can increase hurricane rainfall by much more than 7% due to other factors.
- The biggest problems are not in the average weather days, but in the extremes. Extreme weather events become much more likely with small shifts in average temperatures. For example, extreme temperature events that occurred once in 10 years on average before 1900 now likely occur 2.8 times in 10 years with the 1.1ºC increase we have caused, and will likely occur 5.6 times in 10 years with a 2ºC increase.
- The planet was in equilibrium before we started warming it. We're changing that equilibrium. The planet is huge, so those resulting changes are huge.

*Won't the market solve this problem on its own?*

No. Individual organizations and people need to push the market to act, and push governments to shape the incentives for the market.

- The market "cost" of fossil fuels is artificially low, because it excludes the costs of "externalities": the problems directly caused by using those fuels: the death and destruction caused by climate change, and the costs of adaptation to avoid future death and destruction.
- The market "cost" of fossil fuels is also artificially low because it includes a century of direct and indirect governmental supports.
- The market will adjust very slowly over time – but always lagging the problem. Market fixes will be too little, too late. This is proven by today's crisis: the market didn't develop a massive focus on renewable energy in time to avoid 1.5ºC+ of warming. And transformative change brings strong opposition from those with vested interests in the status quo, a clear experience over the past 40 years.

*Is this about going back to the 19th century?*

No. Reduction of GHG emissions is not about using less energy – in fact the world needs to use more energy, to help more countries develop. It's about the type of energy: it needs to be renewable.

## C. Biodiversity Loss

*This summary is based primarily (though not exclusively) on the May 2019 IPBES report and the related press release, and quotes heavily from those sources. {Core resource D}*

### *What biodiversity loss has already happened, and what will happen in the future if we don't act?*

Biodiversity discusses the diversity within species of animals and plants, between species, and between ecosystems, as well as the many fundamental contributions humans derive from nature.

**Around 1 million animal and plant species are now threatened with extinction, many within decades – more than ever before in human history**. There are an estimated 8 million animal and plant species on Earth. The average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900. More than 40% of amphibian species, almost 33% of reef forming corals and more than 1/3 of marine mammals are threatened. Observed numbers of insects are in catastrophic decline. At least 680 vertebrate species have been driven to extinction since the 16th century.

The current extinction rate is tens to hundreds of times higher than the average over the last 10 million years, and the rate is accelerating.

Ecosystems, species, wild populations, local varieties and breeds of domesticated plants and animals are shrinking, deteriorating or vanishing. The essential, interconnected web of life on Earth is getting smaller and increasingly frayed.

### *What is causing biodiversity loss?*

The loss is a direct result of human activity.

**The five direct drivers of change in nature with the largest relative global impacts are, in descending order: (1) changes in land and sea use, (2) direct exploitation of organisms, (3) climate change, (4) pollution, and (5) invasive alien species.**

Climate change is already impacting nature from the level of ecosystems to that of genetics – impacts expected to increase over the coming decades, in some cases surpassing the impact of land and sea use change.

Ecosystems are being destroyed. Ecosystem extent and condition has been reduced 47% against estimated natural baselines, with many continuing to decline by at least 4% per decade. 75% of the land-based environment and about 66% of the marine environment have been significantly altered by human actions. Over 85% of wetlands present in 1700 had been lost by 2000; the loss of wetlands is currently 3x faster, in percentage terms, than forest loss. Around 50% of live coral cover of reefs has been lost since the 1870s.

Our food supply chain is destroying nature. 75% of land surface and of freshwater resources are devoted to crop or livestock production. In 2015, 33% of marine fish stocks were being harvested at unsustainable levels; 60% were maximally sustainably fished.

Pollution is a growing problem, despite decades of focus. Plastic pollution has increased 10x since 1980. Fertilizers entering coastal ecosystems have produced more than 400 ocean dead zones, with a combined area greater than that of the United Kingdom.

Financial practices are making the problem worse. OECD countries gave an estimated $100 billion in 2015 in financial support to agriculture that is potentially harmful to the environment. Global subsidies for fossil fuels total $345 billion, resulting in $5 trillion in overall costs, including nature deterioration externalities.

*Is this only about animals and plants, or is it also about people?*

Biodiversity loss is a direct threat to human well-being in all regions of the world. Grave impacts on people around the world are now likely. We are eroding the foundations of our economies, livelihoods, food security, health and quality of life worldwide.

The benefits biodiversity brings are called “ecosystem services”. Biodiversity keeps us all alive, and helps to make our lives healthy and safe. Ecosystem services include forests that diminish floods, coastlines that protect us from changing sea levels, wetlands that regulate pollution, parks that ease our anxiety, and plants and animals that provide medicines. These services are extremely valuable, but the value can’t be calculated in traditional measures of national or individual wealth. Consider just 3 of innumerable examples: 75% of global food crop types rely on animal pollination; 70% of cancer drugs are natural, or synthetic products inspired by nature; water and land ecosystems annually sequester $CO_2E$ equivalent to 60% of global fossil fuel emission.

In the words of the Natural History Museum’s biodiversity science research leader, “The goose that lays the golden eggs is very ill.”

Changes in the human relationship with nature – driven by scarcity and human-caused change – are hugely destabilizing. There are more than 2,500 conflicts over fossil fuels, water, food and land currently occurring worldwide.

Current negative trends in biodiversity and ecosystems will undermine progress towards 80% of the assessed targets of the UN SDGs related to poverty, hunger, health, water, cities, climate, oceans and land. Loss of biodiversity is therefore not only an environmental issue, but also a developmental, economic, security, social and moral issue.

At least 1/4 of global land area is traditionally owned, managed, used or occupied by indigenous peoples. Nature managed by indigenous peoples and local communities is under increasing pressure but is generally declining less rapidly than in other lands – although 72% of local indicators developed and used by them show the deterioration of nature that underpins local livelihoods. The areas of the world projected to experience significant negative effects are also areas in which large concentrations of indigenous peoples and many of the world’s poorest communities reside. Their inclusion and participation in environmental governance often enhances their quality of life, as well as nature conservation, restoration and sustainable use. Their positive contributions to sustainability can be facilitated by us directly, through investment in offset projects that engage them directly. (See Action Area #1G.)

It is not too late to make a difference – but only if we start now at every level from local to global. Through transformative change across technological, economic and social factors, nature can still be conserved, restored and used. Negative trends in nature will continue to 2050 and beyond in all scenarios, except those that include transformative change. The IPBES member countries have acknowledged that transformative change can expect opposition from those with interests vested in the status quo – but also that such opposition can be overcome for the broader public good. So, governments need our support to do what they know is best for the planet. And we need to take our own action however we can.

## 5. Acknowledgements

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