

# RESILIENT PEOPLE, RESILIENT COMMUNITIES

Building urban climate resilience through  
cultural ecosystem services

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CLIMATE ADAPTATION + RESILIENCE LAB







# **Presentation Outline**

**1**



**Context**

**2**



**Problem**

**3**



**Methods**

**4**



**Findings**

**5**



**Conclusion**



**Provisioning**

**Regulating**

**Ecosystem  
Services**

**Cultural**

**Supporting**





# Ecosystem Services





# Cultural Ecosystem Services







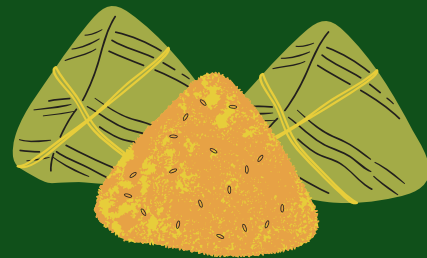
**Sense of Place**



**Cultural Heritage**



**Inspiration**



**Cultural Diversity**



**Social Relations**



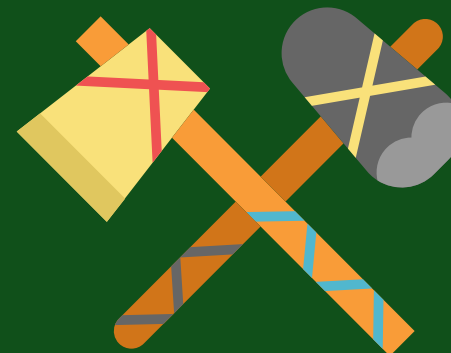
**Educational Value**



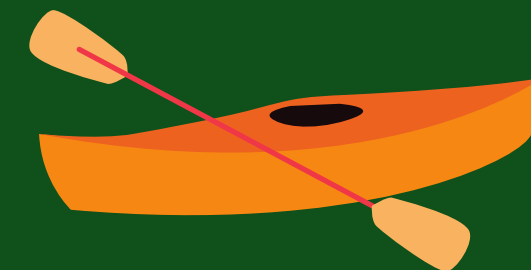
**Aesthetics**



**Religious & Spiritual Value**



**Knowledge Systems**



**Recreation and Ecotourism**





Context









**Strong social  
networks**



**Less climate  
vulnerabilities**



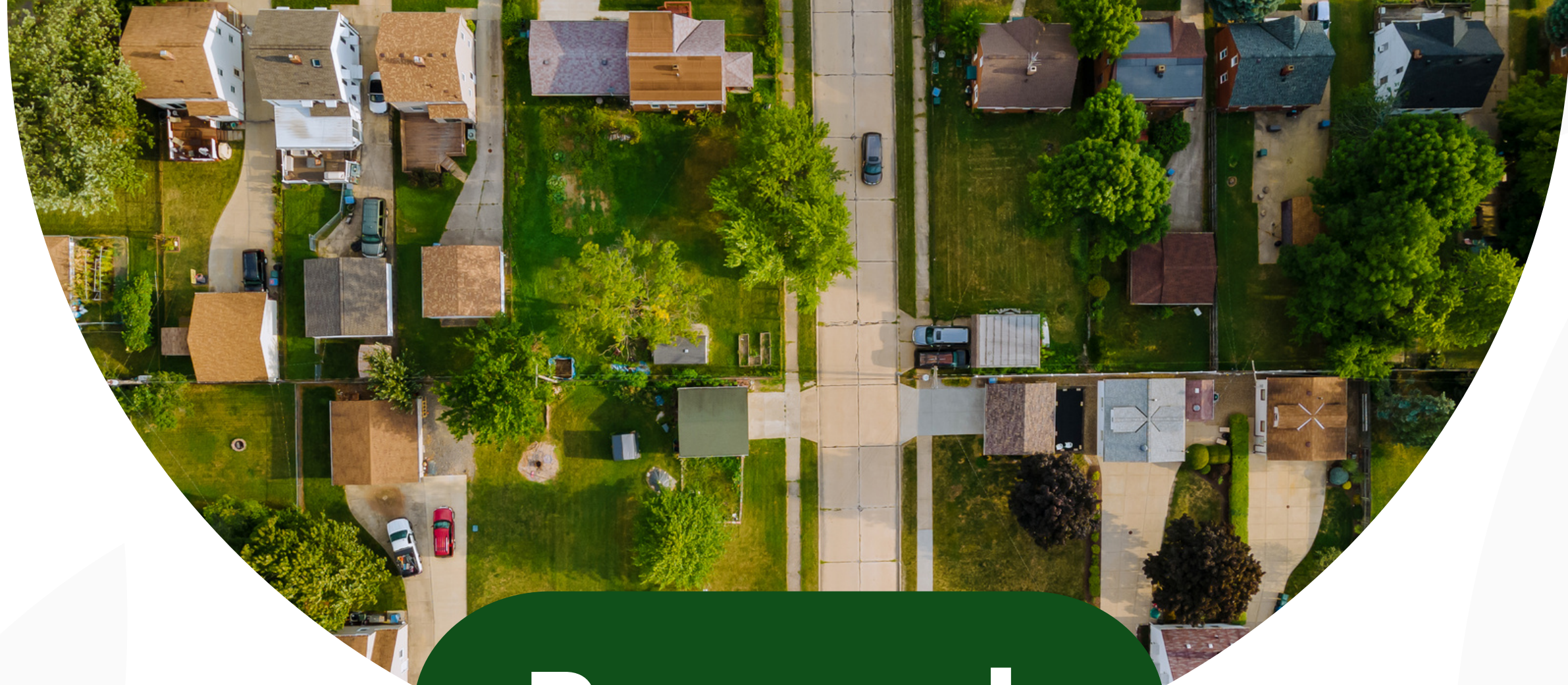


# Urban Planning

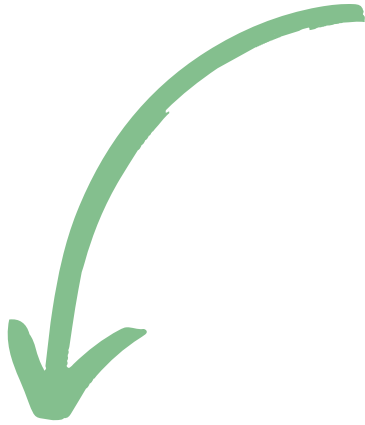


Problem

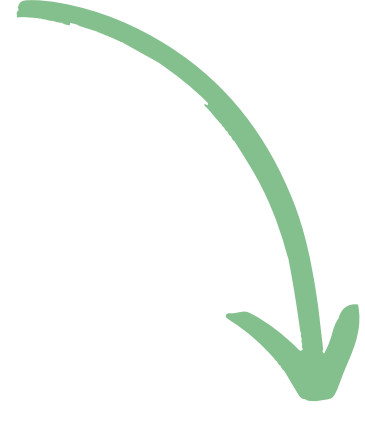




# Research



**How are CES components being used?**



**To increase urban climate resilience?**





# Methods

**Qualitative approach**

**Case Study: Edmonton, Alberta, Canada**





# Methods

## **Document review and analysis**

Plans, policies, guidelines, discussion papers

## **Keyword search**

Words referenced in relation to CES



# Document Themes



***Economic and Strategic Growth***



***Protection of Health and Environment***



***Climate Change Preparedness and Adaptation***



***Urban Agriculture and Food Systems***



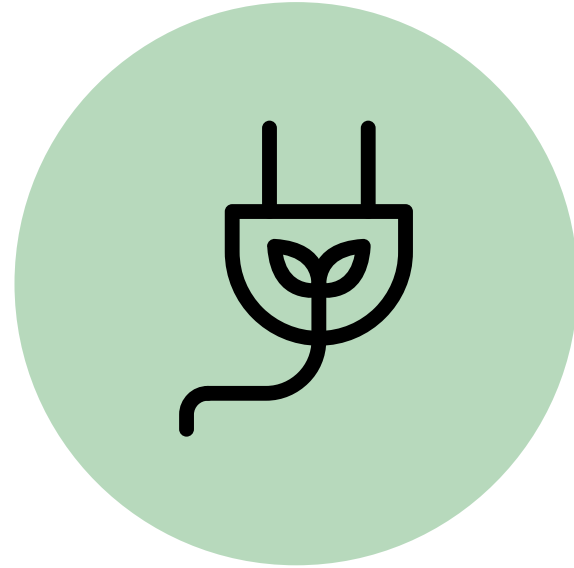


# Findings

- CES components appear throughout all themes
- Explicitly defined in only one theme
- Most common appearances: *Sense of place, social relations, cultural diversity, educational values, recreation and tourism*



# Focus of Climate Planning



**Sustainable Energy**

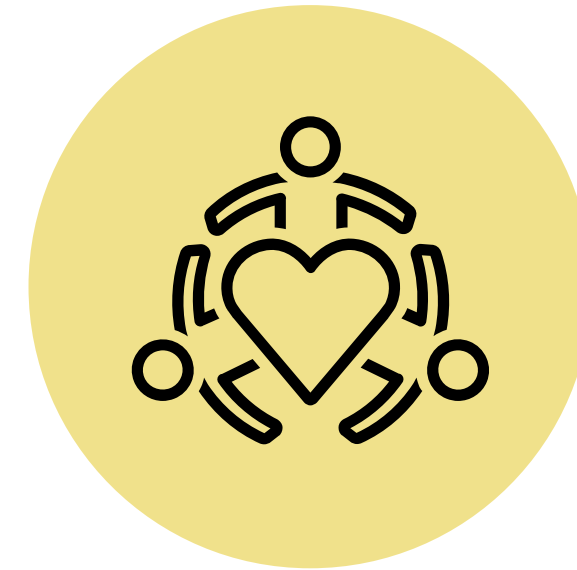


**Green Infrastructure**





# Focus of Climate Planning



**Community Cohesion**



**Environmental Stewardship**



# Social Vulnerability

**Social well-being at risk**

**Quantitative > Qualitative**

**Fostering well-being through  
CES components**







# Recognition of CES







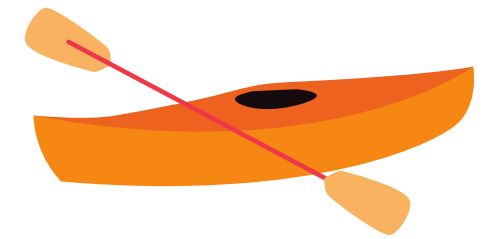
***Sense of place***



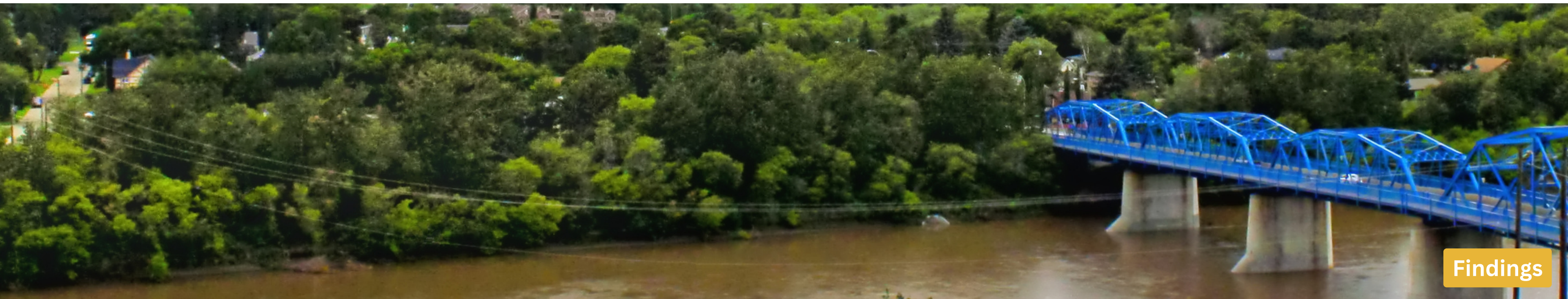
***Aesthetics***



***Inspiration***



***Recreation & Tourism***





# Interventions





# Expanding Conversations





# Plurality of Values in ES Valuation





# Community Engagement





# In Summary...





# Thank You!





# References

Baulcomb, C., Fletcher, R., Lewis, A., Akoglu, E., Robinson, L., von Almen, A., Hussain, S., & Glenk, K. (2015). A pathway to identifying and valuing cultural ecosystem services: An application to marine food webs. *Ecosystem Services*, 11, 128–139. <https://doi.org/10.1016/j.ecoser.2014.10.013>

Bieling, C. (2014). Cultural ecosystem services as revealed through short stories from residents of the Swabian Alb (Germany). *Ecosystem Services*, 8, 207–215. <https://doi.org/10.1016/j.ecoser.2014.04.002>

Birchall, S. J., Bonnett, N., & Kehler, S. (2023). The influence of governance structure on local resilience: Enabling and constraining factors for climate change adaptation in practice. *Urban Climate*, 47. <https://doi.org/10.1016/j.uclim.2022.101348>

Bryce, R., Irvine, K. N., Church, A., Fish, R., Ranger, S., & Kenter, J. O. (2016). Subjective well-being indicators for large-scale assessment of cultural ecosystem services. *Ecosystem Services*, 21(December 2015), 258–269. <https://doi.org/10.1016/j.ecoser.2016.07.015>

Chan, K. M. A., Satterfield, T., & Goldstein, J. (2012). Rethinking ecosystem services to better address and navigate cultural values. *Ecological Economics*, 74, 8–18. <https://doi.org/10.1016/j.ecolecon.2011.11.011>

Cheng, X., Van Damme, S., Li, L., & Uyttenhove, P. (2019). Evaluation of cultural ecosystem services: A review of methods. *Ecosystem Services*, 37, 100925. <https://doi.org/10.1016/j.ecoser.2019.100925>

City of Edmonton. (2007). Natural Connections Strategic Plan. Retrieved February 24, 2023, from [https://www.edmonton.ca/public-files/assets/document?path=PDF/Natural\\_Connections\\_-\\_Strategic\\_Plan\\_JUNE\\_09.pdf](https://www.edmonton.ca/public-files/assets/document?path=PDF/Natural_Connections_-_Strategic_Plan_JUNE_09.pdf)

City of Edmonton. (2009). Edmonton Biodiversity Action Plan. Retrieved February 24, 2023, from [https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/Edmonton\\_Biodiversity\\_Action\\_Plan\\_Final.PDF](https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/Edmonton_Biodiversity_Action_Plan_Final.PDF)



# References

City of Edmonton. (2012). City of Edmonton Wetland Strategy. Retrieved February 24, 2023, from [https://www.edmonton.ca/sites/default/files/public-files/assets/FINAL\\_Wetland\\_Strategy\\_low\\_res.pdf](https://www.edmonton.ca/sites/default/files/public-files/assets/FINAL_Wetland_Strategy_low_res.pdf)

City of Edmonton. (2012). fresh - Edmonton's Food and Urban Agriculture Strategy. Retrieved February 24, 2023, from [https://www.edmonton.ca/city\\_government/initiatives\\_innovation/food-and-urban-agriculture](https://www.edmonton.ca/city_government/initiatives_innovation/food-and-urban-agriculture)

City of Edmonton. (2016). BREATHE Edmonton's Green Network Strategy - Network Context. Retrieved February 24, 2023, from [https://www.edmonton.ca/public-files/assets/document?path=PDF/EdmontonGreenNetworkContext\\_Stage1SummaryReport\\_July2016.pdf](https://www.edmonton.ca/public-files/assets/document?path=PDF/EdmontonGreenNetworkContext_Stage1SummaryReport_July2016.pdf)

City of Edmonton. (2018). Climate Resilient Edmonton: Adaptation Strategy and Action Plan. Retrieved February 24, 2023, from [https://www.edmonton.ca/sites/default/files/public-files/assets/Climate\\_Resilient\\_Edmonton.pdf](https://www.edmonton.ca/sites/default/files/public-files/assets/Climate_Resilient_Edmonton.pdf)

City of Edmonton. (2018). CONNECTEDMONTON - Edmonton's Strategic Plan 2019 - 2028. Retrieved February 24, 2023, from [https://www.edmonton.ca/public-files/assets/document?path=ConnectEdmonton\\_Book\\_Web.pdf](https://www.edmonton.ca/public-files/assets/document?path=ConnectEdmonton_Book_Web.pdf)

City of Edmonton. (2020). Edmonton City Plan. Retrieved February 24, 2023, from [https://www.edmonton.ca/public-files/assets/document?path=PDF/City\\_Plan\\_FINAL.pdf](https://www.edmonton.ca/public-files/assets/document?path=PDF/City_Plan_FINAL.pdf)

Daniel, T. C., Muhar, A., Arnberger, A., Aznar, O., Boyd, J. W., Chan, K. M. A., Costanza, R., Elmqvist, T., Flint, C. G., Gobster, P. H., Grêt-Regamey, A., Lave, R., Muhar, S., Penker, M., Ribe, R. G., Schauppenlehner, T., Sikor, T., Soloviy, I., Spierenburg, M., Von Der Dunk, A. (2012). Contributions of cultural services to the ecosystem services agenda. *Proceedings of the National Academy of Sciences of the United States of America*, 109(23), 8812–8819. <https://doi.org/10.1073/pnas.1114773109>

de Groot, R. S., Alkemade, R., Braat, L., Hein, L., & Willemsen, L. (2010). Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. *Ecological Complexity*, 7(3), 260–272. <https://doi.org/10.1016/j.ecocom.2009.10.006>



# References

Gamble, J. L., Hurley, B. J., Schultz, P. A., Jaglom, W. S., Krishnan, N., & Harris, M. (2013). Climate change and older Americans: State of the science. *Environmental Health Perspectives*, 121(1), 15–22. <https://doi.org/10.1289/ehp.1205223>

International Union for Conservation of Nature (IUCN). (2021). Ecosystem-based Approaches to Climate Change Adaptation. Retrieved from International Union for Conservation of Nature: <https://www.iucn.org/theme/ecosystem-management/our-work/ecosystem-based-approaches-climate-change-adaptation>

Kehler, S., & Birchall, S. J. (2021). Social vulnerability and climate change adaptation: The critical importance of moving beyond technocratic policy approaches. *Environmental Science and Policy*, 124(August), 471–477. <https://doi.org/10.1016/j.envsci.2021.07.025>

McPhearson, T., Andersson, E., Elmqvist, T., & Frantzeskaki, N. (2015). Resilience of and through urban ecosystem services. *Ecosystem Services*, 12, 152–156. <https://doi.org/10.1016/j.ecoser.2014.07.012>

Milcu, A. I., Hanspach, J., Abson, D., & Fischer, J. (2013). Cultural Ecosystem Services: A Literature Review and Prospects for Future Research. *Ecology and Society*, 18(3). <https://doi.org/10.5751/ES-05790-180344>

Millennium Ecosystem Assessment (MEA). (2005). *Ecosystems and Human Well-being: Synthesis*. Island Press. <https://www.millenniumassessment.org/documents/document.356.aspx.pdf>

Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. *Cities*, 115(November 2020), 103229. <https://doi.org/10.1016/j.cities.2021.103229>