International
Handbook of Forest
Therapy
International Handbook of Forest Therapy

Edited by
Dieter Kotte, Qing Li, Won Sop Shin and Andreas Michalsen

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# List of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Contents</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xv</td>
</tr>
<tr>
<td>List of Images</td>
<td>xviii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>xx</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>xxi</td>
</tr>
<tr>
<td>Preface</td>
<td>xxii</td>
</tr>
</tbody>
</table>

## Chapter 1
Theoretical Framework of Forest Therapy ....................................... 1

1.1 **Forests, experience and the good life** ................................ 2
   1.1.1 Feeling good and being good ........................................... 2
   1.1.2 Experience and practice ............................................... 3
   1.1.3 “Wisdom” ......................................................................... 4
   1.1.4 Nature and the good life ............................................... 5
   1.1.5 Holism and mystery ....................................................... 6
   1.1.6 Being in the forest ..................................................... 8
   References ............................................................................. 10

1.2 **Nature’s pathways on human health** ....................................... 12
   1.2.1 Contact with nature promotes human health .......................... 12
   1.2.2 Direct pathways of nature’s benefits on human health .......... 14
   1.2.3 Indirect pathways of nature’s benefits on human health ....... 20
   1.2.4 Concluding remarks ...................................................... 21
   References ............................................................................. 21

1.3 **Updating the biophilia hypothesis in the context of forest medicine** 32
   1.3.1 Abstract .......................................................................... 32
   1.3.2 The psychoanalytic approach to biophilia ........................... 32
   1.3.3 The evolutionary approach: the biophilia hypothesis .......... 33
   1.3.4 Savannah in our genes: biophilic responses to natural stimuli ............................................................................ 35
   1.3.5 Biophilia in the context of forest medicine ....................... 37
   References ............................................................................. 39

1.4 **Eco-Psychosomatics – the link between natural habitats and human health** 42
   1.4.1 Abstract .......................................................................... 42
   1.4.2 Eco-Psychosomatic thinking exemplified via the human immune system ................................................................. 42
   1.4.3 The functional circle with our natural habitats .................... 43
1.4.4 Defining Eco-Psychosomastics .............................................. 44
1.4.5 The future of Eco-Psychosomastics in the context of forest medicine .......................................................... 46
References ........................................................................ 47
1.5 Bioplane for Forest Therapy .................................................. 48
1.5.1 Introduction .................................................................... 48
1.5.2 The secrets of energy ..................................................... 48
1.5.3 Signature biochemistry .................................................. 49
1.5.4 The architecture of the forest ........................................ 49
1.5.5 The payload ................................................................... 50
1.5.6 A moderation of climate change .................................... 51
1.5.7 Forest medicine in ancient times ................................... 51
1.5.8 Forest Therapy ............................................................... 53
1.5.9 North American treasured trees ..................................... 54
1.5.10 The sacred tree of the First Nations ............................... 54
1.5.11 A health shield of the planet ........................................ 54
1.5.12 Medicine from Japan .................................................... 55
1.5.13 The Bioplane Concept .................................................. 56
1.5.14 The cardiac bioplane .................................................... 56
1.5.15 The birch bioplane ....................................................... 57
1.5.16 Conclusion ................................................................. 57
References ........................................................................ 58

Chapter 2
The Status Quo of Research in Forest Medicine ................. 61
2.1 Introduction of Forest Medicine: Forest Medicine as an important field of research .............................................. 62
2.1.1 What is Forest Medicine? ............................................. 62
2.1.2 How to enjoy Shinrin-yoku ........................................... 64
2.1.3 Why is Forest Medicine necessary? ............................. 65
2.1.4 Evidence-based Forest Medicine ................................ 65
2.1.5 The future of Forest Medicine .................................... 69
References ........................................................................ 69
2.2 Effect of Forest Therapy on the immune function .......... 74
2.2.1 Introduction ................................................................. 74
2.2.2 Effect of Forest Therapy on human NK cell activity in male subjects ............................................................... 75
2.2.3 Duration of increased NK cell activity .......................... 78
2.2.4 Effect of Forest Therapy on human NK cell activity in female subjects ....................................................... 79
2.2.5 The effect of a single Forest Therapy event on the NK cell activity ............................................................ 81
2.2.6 Forest Therapy boosts NK cell activity by reducing stress hormones.............................. 82
2.2.7 Mechanism of Forest Therapy boosting human NK cell activity........................................ 83
2.2.8 Conclusions.................................................................................................................. 85
References............................................................................................................................ 86

2.3 The psychological and psychosomatic benefits of Forest Therapy ........................................ 91
2.3.1 Forest Medicine: the beginning of proving the physiological and psychological effects of Forest Therapy . 91
2.3.2 Biological reactions to stress................................................................. 92
2.3.3 Psychological reactions to stress.............................................................. 94
2.3.4 Psychosomatic benefits of Forest Therapy ......................................... 95
2.3.5 Psychological benefits of Forest Therapy ............................................. 96
2.3.6 The benefits of Forest Therapy for the Public ........................................... 97
References............................................................................................................................ 102

2.4 Effect of Forest Therapy on the human psycho-neuro-endocrino-immune network ......................... 106
2.4.1 Introduction.............................................................................................................. 106
2.4.2 Effect of Forest Therapy on sympathetic and parasympathetic nervous activity .................. 108
2.4.3 Effect of Forest Therapy on psychological responses............................................ 108
2.4.4 Effect of Forest Therapy on the endocrine system..................................... 109
2.4.5 Effect of Forest Therapy on the immune system........................................... 110
References............................................................................................................................ 111

2.5 Effect of Forest Therapy on the activities of sympathetic and parasympathetic nerves.............................. 115
2.5.1 Definition of the autonomic nervous system ................................................. 115
2.5.2 Indicators of the autonomic nervous system...................................................... 116
2.5.3 Applications of markers of the autonomic nervous system in research ...................... 119
References............................................................................................................................ 122

2.6 The potential preventive effect of Forest Therapy on lifestyle-related diseases .......................................... 124
2.6.1 Introduction.............................................................................................................. 124
2.6.2 Potential preventive effect of Forest Therapy on type-2 diabetes .............................. 125
2.6.3 Potential preventive effect of Forest Therapy on hypertension.............................. 126
2.6.4 Mechanism of Forest Therapy on the effect of blood pressure .............................. 127
2.6.5 Potential preventive effect of Forest Therapy on heart disease .............................. 129
| 2.6.6 | Potential preventive effect of Forest Therapy on respiratory diseases | 129 |
| 2.6.7 | Potential preventive effect of Forest Therapy on cancer | 130 |
| 2.6.8 | Potential preventive effect of Forest Therapy on depression | 131 |
| 2.6.9 | Conclusion | 132 |
| References | 133 |

**Chapter 3**
The Status Quo of Research in Forest Therapy .......... 139

### 3.1 The Effect of Phytoncides

| 3.1.1 | Introduction | 140 |
| 3.1.2 | The composition of phytoncides | 141 |
| 3.1.3 | Physiological effects of phytoncides | 143 |
| 3.1.4 | Psychological effects of phytoncides | 146 |
| 3.1.5 | Conclusion | 146 |
| References | 147 |

### 3.2 How might contact with nature promote human health?

**Promising mechanisms and a possible central pathway** .... 148

| 3.2.1 | Abstract | 148 |
| 3.2.2 | Introduction | 148 |
| 3.2.3 | How nature might promote health: plausible pathways | 149 |
| 3.2.4 | Environmental conditions | 150 |
| 3.2.5 | Physiological and psychological states | 151 |
| 3.2.6 | Behaviors and conditions | 152 |
| 3.2.7 | Exploring the possibility of a central pathway | 153 |
| 3.2.8 | Conclusion | 157 |
| Acknowledgments | 158 |
| Supplementary Material | 158 |
| Accompanying Note | 158 |
| References | 159 |

### 3.3 Forestry and community livelihoods

| 3.3.1 | Introduction | 166 |
| 3.3.2 | Forests and community livelihoods | 167 |
| 3.3.3 | Urbanization and green cities | 170 |
| 3.3.4 | Integrating Forest Therapy into forest management | 173 |
| 3.3.5 | Broadening current conceptions of health care | 174 |
| 3.3.6 | Access to Forest Therapy | 177 |
| 3.3.7 | Areas for further research | 179 |
| 3.3.8 | Conclusion and recommendations | 180 |
| References | 182 |
3.4 Bringing it home: Forest Therapy, policy and cities ........ 188
3.4.1 Introduction .......................................................... 188
3.4.2 Policy initiatives .................................................... 191
3.4.3 Places and spaces ................................................... 199
3.4.4 Site specifications ................................................... 201
3.4.5 A systems outlook ................................................... 203
    Acknowledgements ................................................... 205
    References .............................................................. 205
3.5 Seeing the forest through the trees: Contemporary and future avenues of research ...................... 208
3.5.1 Strengthening research outcomes by enabling causal inferences .............................................. 208
3.5.2 Increasing power: advantages and disadvantages of the cross-over design ....................................... 210
3.5.3 Allowing better comparisons across different studies .... 211
3.5.4 Medical and societal acceptance of Forest Therapy .... 212
3.5.5 A broader outlook on nature ...................................... 213
3.5.6 Conclusion .............................................................. 215
    References .............................................................. 215
Chapter 4
International Approaches in Forest Therapy ....................... 221
4.1 Forest Therapy in Korea .............................................. 222
    4.1.1 Development of forests in Korea .............................. 222
    4.1.2 Social trends and forest healing ............................... 224
    4.1.3 Forest recreation and forest healing ........................... 226
    4.1.4 Development of forest healing facilities and healing programs .................................................. 227
    4.1.5 Certification of Forest Healing Instructors .................. 228
    4.1.6 Practicing forest healing programs ............................ 229
    4.1.7 National Forest Healing Complex .............................. 230
    4.1.8 Future Challenges .................................................. 232
    References .............................................................. 233
4.2 The origin and development of Chinese Forest Therapy .... 236
    4.2.1 Summary of the current situation of forest recuperation in China .................................................. 237
    4.2.2 The origin of Chinese forest recuperation ..................... 238
    4.2.3 The relationship between forest recuperation and forest health care in China ................................. 240
    4.2.4 The significance of China’s forest recuperation ............ 242
    4.2.5 Development history and current situation of Chinese forest recuperation .................................. 244
4.2.6 Development trend of forest recuperation and forest health care in China .......................................................... 251
Acknowledgement .................................................................. 255
References ............................................................................. 255

4.3 The development of Forest Therapy in Taiwan .................. 257
4.3.1 Introduction .................................................................. 257
4.3.2 Forest Therapy development in Taiwan ......................... 257
4.3.3 Forest Therapy research in Taiwan ................................. 262
4.3.4 Conclusion .................................................................... 264
References ............................................................................. 265

4.4 Forest Therapy in Malaysia .............................................. 268
4.4.1 Mandi Embun: An ancient Malaysian version of Forest Therapy? ................................................................. 268
4.4.2 Mental health of Malaysia .............................................. 270
4.4.3 The future of Forest Therapy in Malaysia ..................... 271
References ............................................................................. 272

4.5 Forest Therapy in Australia ............................................. 273
4.5.1 Australian Aborigines and connection to country ............ 273
4.5.2 Nature and forests .......................................................... 274
4.5.3 Australia’s health issues .................................................. 278
4.5.4 Preventative Public health ............................................. 281
4.5.5 Forest Therapy developments ....................................... 284
4.5.6 Royal Botanic Gardens, Melbourne, Victoria ................. 286
4.5.7 Outlook ......................................................................... 289
Acknowledgement .................................................................. 290
References ............................................................................. 290

4.6 Health promotion and nature-culture outdoors actions as Forest Therapy in Norway ................................. 294
4.6.1 The Norwegian tradition of “friluftsliv” or “outdoor nature life” ................................................................. 294
4.6.2 Forest therapy, “friluftsliv”, nature and culture as retreat and rehabilitation .................................................. 295
4.6.3 Introduction of some previous studies and experiences of nature ................................................................. 296
4.6.4 Nature, wellbeing and health ........................................ 297
4.6.5 A “case study” illustrating the “Nature-Culture-Health Interplay”: salutogenic potentials in nature - in reference to musical associations and memories .............................................. 298
4.6.6 Methods, aims and participants ................................... 299
4.6.7 Results .......................................................................... 300
4.6.8 Discussion .................................................................... 302
4.6.9 Concluding remarks ...................................................... 304
References ............................................................................. 306
4.7 **Forest Therapy in Sweden** ........................................... 310
   4.7.1 Introduction ........................................................................... 310
   4.7.2 Nature-based research in Sweden .................................. 311
   4.7.3 Forest and health: The Swedish Forest Therapy .......... 312
   4.7.4 The Swedish “skogsbad” .................................................. 314
   4.7.5 Planning for forestry and Forest Therapy .................... 315
   4.7.6 Forest Therapy and integration ...................................... 316
   4.7.7 Conclusions ........................................................................ 317
   References .................................................................................. 318

4.8 **Forest Therapy in Germany** .............................................. 321
   4.8.1 Germans and their forests from a historical perspective .... 321
   4.8.2 Germany’s emerging spa and wellbeing culture ............ 323
   4.8.3 The emergence of Forest Therapy in Germany .......... 327
   4.8.4 Establishing legislation for cure and healing forests in
        Germany .................................................................................. 329
   4.8.5 The need for a pilot research project in Germany ........ 330
   4.8.6 Establishing Forest Therapy in Germany as a Public health
        approach ................................................................................. 332
   References .................................................................................. 334

4.9 **Austria: The forest as a touristic landscape** ......................... 337
   4.9.1 The forest as a touristic landscape .................................. 337
   4.9.2 Use of forest landscapes in Austria ................................. 340
   4.9.3 “Forest” health tourism product development .......... 345
   4.9.4 “Forest” product development in Austria .................... 347
   4.9.5 Conclusion and outlook: “The forest as a health space” .. 349
   References .................................................................................. 350

4.10 **Switzerland: Our forests for human health - Forest ecosystems, forest management and Forest Therapy as a tool in integrative prevention and treatment of non-communicable diseases** ................................................................. 356
   4.10.1 Forests and Forest Therapy in Switzerland – demands and
         opportunities ........................................................................... 356
   4.10.2 Forest ecosystem services .................................................. 357
   4.10.3 Forest ecosystem management for therapeutic benefits.... 360
   4.10.4 Forest Therapy in cardiovascular rehabilitation - an
         efficacy study in Switzerland .................................................. 363
   4.10.5 Conclusion and further steps ............................................. 364
         Acknowledgement .................................................................. 366
   References .................................................................................. 366

4.11 **International Nature and Forest Therapy Alliance**
         (INFTA) .................................................................................. 368
   4.11.1 The need for an international peak body ....................... 368
   4.11.2 The aims of INFTA .......................................................... 369
4.11.3 The mission and vision of INFTA ................................. 369
4.11.4 The members of INFTA ........................................... 370
4.11.5 The Executive Committee and Advisory Board of INFTA 370
4.11.6 Selected milestones of INFTA ..................................... 375
References ........................................................................... 377

Chapter 5
Forest Therapy as a Practice .................................................. 379

5.1 International Core Curriculum of Forest Therapy and
Forest Therapy Guide training ............................................. 380
5.1.1 Background and aims .................................................. 380
5.1.2 International Core Curriculum of Forest Therapy (ICCFT) 382
5.1.3 Target population and mailout ..................................... 383
5.1.4 Evaluation and results ................................................. 386
5.1.5 International definition of Forest Therapy .................... 387
5.1.6 International Forest Therapy Guide course design,
instructional material and assessments ........................................ 388
5.1.7 Future developments .................................................. 389
References ........................................................................... 390

5.2 Forest Therapy and stress relief ........................................ 392
5.2.1 Introduction ................................................................... 392
5.2.2 The “Forest Bathing Triad” – a practical approach to
Forest Therapy ....................................................................... 392
5.2.3 Mind – mindfulness and sensory experience ................ 393
5.2.4 Body – breathing and meditation ................................. 395
5.2.5 Soul – nature rituals .................................................... 398
5.2.6 Learning from experience – composing a Forest Therapy
session ................................................................................. 401
5.2.7 Summary ....................................................................... 406
References ........................................................................... 407

5.3 The conduct of a Forest Therapy session ........................... 410
5.3.1 Introduction ................................................................. 410
5.3.2 The scope of practice .................................................. 410
5.3.3 The ethics and standards of Forest Therapy ................ 412
5.3.4 The landscape of Forest Therapy ................................. 413
5.3.5 The guiding of Forest Therapy .................................... 415
5.3.6 The anatomy of an invitation:: criteria for creating Forest
Therapy activities ................................................................. 418
5.3.7 The forest is the therapist: opening the gateway to
intimacy with the forest ....................................................... 420
References ........................................................................... 421

5.4 Forest Therapy practices for self-transformation ............... 422
5.4.1 Practices to elevate the whole person ............................ 423
5.4.2 The Forest Therapy exercise ........................................... 424
5.4.3 Earth Windows .......................................................... 427
5.4.4 Sounds ...................................................................... 428
5.4.5 Silent Sharing Walk ....................................................... 429
5.4.6 The Lake Is Like the Mind .............................................. 430
5.4.7 Calming the Breath ....................................................... 432
5.4.8 The Smile with Your Whole Body Walk ......................... 433
5.4.9 The Flow Learning™ process ....................................... 433
      Credits and Forest Therapy resources ............................... 435
      References ....................................................................... 436

5.5 Awaken pristine awareness through Forest Therapy
      Exercises ........................................................................... 437
  5.5.1 Introduction .................................................................. 437
  5.5.2 Sensory awareness exercises ....................................... 439
  5.5.3 Especially for the young at heart ................................ 444
      Credits and Forest Therapy resources ............................... 448
      References ....................................................................... 448

5.6 Qigong and Forest Therapy ............................................. 449
  5.6.1 What is Qigong? ............................................................. 449
  5.6.2 Origin of Qigong ............................................................ 449
  5.6.3 Qigong in medicine ...................................................... 450
  5.6.4 Qigong in martial arts .................................................. 451
  5.6.5 Qigong in religion or spirituality ................................... 451
  5.6.6 Modern application of Qigong ..................................... 452
  5.6.7 What is “qi”? ................................................................. 452
  5.6.8 Key Qigong practice methods ...................................... 454
      References ....................................................................... 468

5.7 The development of cure and healing forests in
      Mecklenburg-Pomerania, Germany ................................. 469
  5.7.1 The development of cure and healing forests in
      Mecklenburg-Pomerania, Germany .................................. 469
  5.7.2 The cure and healing forest project of Landesforst MV .......................... 473
  5.7.3 Outlook ...................................................................... 475
      References ....................................................................... 475

Chapter 6
Benefits of Forest Therapy as a Public Health Approach ............................................................. 477
  6.1 Forest Therapy as preventive medicine ............................. 478
    6.1.1 Introduction ................................................................. 478
    6.1.2 Forest Therapy as preventive medicine ....................... 479
    6.1.3 Conclusion .................................................................. 488
      References ....................................................................... 489
6.2 Relationships between experiential benefits, place attachment, health/wellbeing and healthy lifestyle behaviors for Forest Therapy campers ........................................... 493
6.2.1 Abstract .................................................................................. 493
6.2.2 Introduction .............................................................................. 493
6.2.3 Literature review ...................................................................... 495
6.2.4 Hypothesized model ................................................................. 497
6.2.5 Methods ................................................................................... 499
6.2.6 Results .................................................................................... 502
6.2.7 Discussion ................................................................................ 504
6.2.8 Implications and suggestions .................................................... 506
Funding ............................................................................................ 507
References ....................................................................................... 507

6.3 The effect of ecological interpretation on the benefits of Forest Therapy ............................................................................ 513
6.3.1 Abstract .................................................................................. 513
6.3.2 Introduction .............................................................................. 513
6.3.3 Methodology ............................................................................ 515
6.3.4 Results and discussion ............................................................... 519
6.3.5 Effectiveness of Forest Therapy with and without ecological interpretation ............................................................ 523
6.3.6 Conclusions and discussion ...................................................... 529
Acknowledgement ........................................................................... 534
References ....................................................................................... 534

6.4 Public health and green space ..................................................... 541
6.4.1 Abstract .................................................................................. 541
6.4.2 Public health ............................................................................ 541
6.4.3 Public health, urbanization and green space .............................. 543
6.4.4 Green space conceptual framework .......................................... 544
6.4.5 Potential underlying mechanism of health benefits of green space .................................................................................. 544
6.4.6 Health benefits ........................................................................ 546
6.4.7 Health risks ............................................................................. 548
6.4.8 Role of socio-economic status ................................................... 550
6.4.9 Green space as a pathway to healthy urban living .................... 550
References ....................................................................................... 551

6.5 Forest Therapy: Limitations and outlook ..................................... 559
6.5.1 Limitations .............................................................................. 561
6.5.2 Outlook .................................................................................... 562
References ....................................................................................... 564

List of Contributing Authors and Editors ........................................... 567
List of Figures

Fig. 1.1: Nature’s pathways on human health .............................................13
Fig. 2.1: Percentage of anxiety and stress among workers in Japan
during 1982-2012 ................................................................................63
Fig. 2.2: Mechanism of Forest Therapy boosting human NK cell
activity .......................................................................................................85
Fig. 2.3: Alternative schematic response systems to stress in humans....92
Fig. 2.4: Stress-induced responses of the sympathetic nervous system
(SNS) and hypothalamic-pituitary adrenocortical axis (HPA)...93
Fig. 2.5: Effect of Forest Therapy on salivary amylase..........................99
Fig. 2.6: POMS results for girls (N=13) and boys (N=10) before and
after Forest Therapy ..............................................................................100
Fig. 2.7: POMS results for women (N=44) and men (N=18) before and
after Forest Therapy ..............................................................................101
Fig. 2.8: Effect of Forest Therapy on the psycho-neuro-endocrino-
immune network .....................................................................................107
Fig. 2.9: Change of pulse rate after viewing and walking .....................120
Fig. 2.10: Change of systolic blood pressure after viewing and walking.120
Fig. 2.11: Change of HF power of HRV upon viewing and walking ......121
Fig. 2.12: Change of LF/HF of HRV upon viewing and walking ..........121
Fig. 2.13: Mechanism of Forest Therapy reducing blood pressure .......128
Fig. 3.1: Main compounds of essential oil and phytoncides in Sugi
forests .......................................................................................................142
Fig. 3.2: In a comfortable forest environment, phytoncides and anions
initiate an autonomic nervous system reaction which relaxes
and promotes health through endocrine activity ..................................143
Fig. 3.3: Animal behavioral analysis used to study the effect of
phytoncides on neuropharmacological activities ...............................144
Fig. 3.4: The nature-health link: filling in the details...........................150
Fig. 3.5: Enhanced immune function as one possible central pathway ..156
Fig. 3.6: World population and cumulative deforestation ...................169
Fig. 3.7: Integrative conception of health common to many native
American traditions ...............................................................................175
Fig. 3.8: Disaggregated view of the human body common to Western
medicine ..................................................................................................176
Fig. 3.9: Schematic differences between Forest Therapy and forest
walks ........................................................................................................179
Fig. 4.1: Distribution of Australia’s forest types in 2013 ......................275
Fig. 4.2: Proportion of overweight and obese adults ..........................280
Fig. 4.3: Pharmaceutical spending across OECD countries, per capita, in USD .................................................................325
Fig. 4.4: Number of hip replacement surgeries in OECD countries ........ 326
Fig. 4.5: Age distribution of forests in Germany ................................ 328
Fig. 4.6: Wooded proportion per area and trees per inhabitant in the respective federal state .................................................340
Fig. 4.7: Territories with a proven recreation function ........................ 342
Fig. 4.8: Use forests for health tourism purposes in Austria, 2018 .......... 343
Fig. 4.9: The ‘forest ecosystem cascade’ ......................................... 359
Fig. 4.10: ‘Forest ecosystem cascade’ and forest therapeutic applications (FTA) ..........................................................361
Fig. 4.11: Visualized and rated examples of varying forests in relation to aspects of the ‘Forest ecosystem cascade’ .........................362
Fig. 5.1: Domains and subject areas related to Forest Therapy .............. 382
Fig. 5.2: Evaluation sheet for the International Core Curriculum of Forest Therapy (ICCFT 2017, Parts 1-2) .................................384
Fig. 5.3: Evaluation sheet for the International Core Curriculum of Forest Therapy (ICCFT 2017, Parts 3-4) ................................ 385
Fig. 5.4: The traditional Chinese sign for qigong .................................449
Fig. 5.5: Qigong - directing force with movement ...............................458
Fig. 5.6: Qigong – feel your qi (part 1) .............................................459
Fig. 5.7: Qigong – feel your qi (part 2) .............................................460
Fig. 5.8: Qigong – return energy to your center .................................. 461
Fig. 5.9: Qigong – activate and spread the energy (part 1) .................... 462
Fig. 5.10: Qigong – activate and spread the energy (part 2) ................. 463
Fig. 5.11: Qigong – the surrounding energy field .............................. 464
Fig. 5.12: Qigong – learning from a tree ........................................... 465
Fig. 5.13: Qigong – being rooted like a tree ...................................... 466
Fig. 5.14: Qigong – feeling the energy between the earth and the sky .... 466
Fig. 5.15: Project areas for cure and healing forests in MecklenburgPomerania, end-2018 .................................................................475
Fig. 6.1: The concept of nature therapy .............................................479
Fig. 6.2: Guided walking route in Xitou Nature Education Area (XNEA), Taiwan ................................................................. 485
Fig. 6.3: Result of paired-sample t-test shows decreased pulse rate after the Forest Therapy program .................. 486
Fig. 6.4: Result of paired-sample t-test shows decreased blood pressure after the Forest Therapy program .................. 486
Fig. 6.5: Results of structural model ..................................................504
Fig. 6.6: Hypothesized framework of study on the effects of Forest Therapy on ecological interpretation in Taiwan........................516
Fig. 6.7: Number of tourists at Sheding Forest Park and Kenting Forest Recreation Area..........................................................517
Fig. 6.8: Conceptual framework of Public health........................................542
Fig. 6.9: Conceptual framework of green space, mechanisms, health effects and current status of evidence.................................543
## List of Images

| Image 2.1: | Forest Therapy participants walking in a forest | 75 |
| Image 2.2: | Forest Therapy participants taking a rest in a forest | 76 |
| Image 2.3: | Forest Therapy participants walking in a Japanese cypress forest | 79 |
| Image 2.4: | Female participants enjoy a Forest Therapy walk | 80 |
| Image 2.5: | Participants assembling for a Forest Therapy walk in Japan | 98 |
| Image 2.6: | Specific wood cutting activity for children as part of a Forest Therapy walk in Japan | 99 |
| Image 2.7: | An HRV measuring system | 117 |
| Image 3.1: | Amazonian women with medicinal remedies made from leaves, roots, tree oils and barks | 168 |
| Image 3.2: | Family in the Brazilian Amazon collecting nutritious fruit, Platonia insignis | 172 |
| Image 3.3: | Children playing in a caju tree in Brazil | 178 |
| Image 4.1: | Example of forested land in Pohang in the southeastern part of Korea; restored during the national reforestation project from the 1960s (top) to the 2000s (bottom) | 223 |
| Image 4.2: | Governmental and individual efforts in the restoration of forest land in Korea in the 1970s | 224 |
| Image 4.3: | Example of a Natural Recreation Forest (left), its lodges (middle) and wood deck trail (right) | 226 |
| Image 4.4: | Examples of the healing programs conducted in forests for adult and pregnant women | 228 |
| Image 4.5: | The Happy Train to the Forests program, a forest healing camp to prevent bullying in schools | 229 |
| Image 4.6: | The National Forest Healing Complex (left), its lodges (center), and forest trail (right) | 230 |
| Image 4.7: | Healing gardens in the National Forest Healing Complex | 231 |
| Image 4.8: | Hydrotherapy center (top), indoor therapy room (bottom left), and exercise room (bottom right) in the National Forest Healing Complex | 232 |
| Image 4.9: | Qigong exercises as part of the demonstration of forest recuperation for participants of the International Hangzhou Symposium of Forest Therapy, September 2018 | 249 |
| Image 4.10: | Expert panel discussion at the International Hangzhou Symposium of Forest Therapy, September 2018 | 254 |
Image 4.11: Demonstration of Nordic walking in Dasyueshan forest recreation area ................................................................. 259
Image 4.12: Practice of meditative breathing in Alishan forest recreation area ........................................................................... 259
Image 4.13: Touching sawdust in Dongyanshan forest recreation area ...................................................................................... 259
Image 4.14: Walking in Bamboo forest ............................................................................................................................... 261
Image 4.15: Self-guided Forest Therapy map ......................................................................................................................... 261
Image 4.16: Cover photo for Forest Therapy at the Xitou Nature Education Area, Taiwan .......................................................... 261
Image 4.17: International Symposium on Forest Health and Forest Therapy, Taiwan 2015 .......................................................... 262
Image 4.18: International Conference of Forest, Human Health and Wellbeing, Taiwan 2017 ....................................................... 262
Image 4.19: Brimbank City Council, community Forest Therapy walk in a Melbourne suburb ....................................................... 284
Image 4.20: Forest Therapy event at the Royal Botanic Gardens, Melbourne, June 2019 ............................................................. 287
Image 4.21: Midsummer by the lake ........................................................................................................................................... 297
Image 4.22: Forest Therapy and playing music in the Norwegian winter landscape in Asker ........................................................ 305
Image 4.23: Entry sign to the Akasawa Recreation Forest, the very first official Forest Therapy Base in Japan, May 2019 ...... 375
Image 5.1: Sensory activities are part of Forest Therapy .................. 412
Image 5.2: A public Forest Therapy session at the Royal Botanic Gardens Melbourne, April 2019 ............................................. 416
Image 5.3: Paying attention to the sounds in the forest around you; a typical Forest Therapy activity ................................. 429
Image 5.4: Forest Therapy activity “Camera” ........................... 440
Image 5.5: Forest Therapy is opening new perspectives .................. 445
Image 5.6: Forest Therapy activities in a cure and healing forest in Mecklenburg-Pomerania ................................................. 470
Image 6.1: Sheding Forest Park in Taiwan ......................................................... 516
List of Tables

Table 2.1: Classification of HRV data and normal range of HRV ......118
Table 4.1: Area of forest by state and territory in Australia, 2015 ......275
Table 4.2: Australia’s forest area by forest type, 2015 ....................276
Table 5.1: Expert approval rating for main curricular segments in Forest Therapy .................................................................386
Table 6.1: Item means, factor loadings ($\lambda$) and reliabilities ($\alpha$) for measurement model ................................................................503
Table 6.2: Attributes of tourists and derived variables .......................518
Table 6.3: Questionnaire assessing the effects of Forest Therapy ......519
Table 6.4: Descriptives of tourists’ attributes shown separately for those who participate in ecological interpretation and those who do not ..............................................................521
Table 6.5: Quantitative analyses of tourists’ attributes .......................522
Table 6.6: Quantitative analysis of the effects of Forest Therapy ......524
Table 6.7: Multiple regression analysis for three selected outcomes related to tourists visiting Sheding Forest Park ....................527
Table 6.8: Multiple regression analysis of tourists’ effects on Forest Therapy .............................................................................528
Acknowledgements

The International Handbook of Forest Therapy is the first of its kind. It has been written and published to discuss, evaluate and validate the new domain of Forest Therapy.

Defining a new domain in the sciences commonly has to overcome many obstacles, be it at the interpersonal, organizational or even political level. In the Middle Ages universities knew only very few sciences or scientiae. Theology and Philosophy were the original starting points in science. Mathematics, Medicine and Law followed later. The advances and discoveries in Physics, Biology and Chemistry led to distinguish between natural sciences and social sciences.

When Sigmund Freud and others of his time analyzed people’s minds, thinking and behavior, mood and emotions, Psychology was in an experimental stage only. Institutionalization of that subject matter into a recognized (and funded) domain of its own took decades.

The modern roots of Forest Therapy lay in Asia with the concept of “Shinrin-yoku”, the immersion in forests, proposed in Japan in 1983. It still took a further three decades before the time was ripe to publish an International Handbook of Forest Therapy. Today, sufficient research and experiences have been gathered to find evidence-based and cost-effective solutions to combat and prevent lifestyle diseases like stress, obesity, diabetes, heart attacks or strokes.

Thus, it should be acknowledged that this book is, indeed and in the true meaning of the word, an international handbook. It is the collective work of many scholars from around the world. Well over 120 researchers, experts and stakeholders involved in, for instance, Public health, medicine, psychology, physiology, biochemistry, biology, forestry, environmental studies, sociology, tourism, education, economics, politics and philosophy have been approached. As a result, we – the editors – are grateful to have been able to include articles from 54 authors in this first International Handbook of Forest Therapy.

These outstanding efforts have been made possible by a range of international workshops, congresses and symposia during the last decade in Asia (e.g., the Hangzhou International Symposium of Forest Therapy, 2018), Australia (e.g., the “Healthy Parks, Healthy People” Conference in Melbourne, 2010), Europe (e.g., the 1st International Congress “Health Potential: Forest” in Mecklenburg-Pomerania, 2017) and the Americas (e.g., the “Natural Environments Initiative” at Harvard University, 2015). Our thanks go, retrospectively, to those who had envisaged the importance nature has and is going to have for humans.
We would also like to thank those who helped to direct Public attention to the topic area. Still, some of the ideas, approaches and suggestions lacked scientific rigor. Yet, establishing Forest Therapy and forest medicine as a Public health practice requires adhering to stringent methodological procedures, proper experimental and empirical designs, appropriate statistical analyzes and transparent validation processes.

Defining a new domain also requires to amalgamate contradictory views and perceptions. Only then, philosophically and methodologically spoken, comes about a dialogue or discourse, a debate, lively and critically with pros and cons to be weighed. Consequently, this handbook brings together a plethora of expert opinions, perceptions and recommendations but also clear evidence that forests bear a measurable potential for our health.

It is this general consensus among us experts which, finally, allowed to define what Forest Therapy is – and that it is, indeed, a domain of its own. It has its own area of application, has its own well-defined medical, psychological, biophysiological as well as neurophysiological properties and it has its own instruments and tools when it comes to practice Forest Therapy in form of professionally guided Forest Therapy walks.

To stress this general consensus within the international research community and to mark the global starting point of Forest Therapy as a unique, independent research domain, we have resorted to capitalize Forest Therapy throughout this handbook.

Years of scientific research and methodology now underpin the practice of Forest Therapy. Thanks, therefore, go the authors who provided invaluable contributions to get this handbook published. We are especially grateful for the relentless support, scientific guidance and peer-review by the co-editors, Professors Qing Li (Japan), Won Sop Shin (Republic of Korea) and Andreas Michalsen (Germany).

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Last but not the least, I take this opportunity to thank the global community of readers of this International Handbook of Forest Therapy and invite their feedback, comments, suggestions and ideas for the next edition.

With many thanks on behalf of our Editorial Board
Dieter Kotte
Preface

Andreas Michalsen

Most people know through life experience how good being in nature can make them feel. The beneficial effects of being in nature, in gardens and forests have been mentioned by the majority of traditional medical systems worldwide, from the ancient Greeks to Asian medicine. But obviously, the topic is now of utmost interest to the scientific community and the public as never before. This increasing awareness of the potential health-promoting benefits of nature and Forest Therapy comes into play, when more and more people worldwide suffer from the tremendous changes of daily life due to the technical and social progress in the recent past.

Following the biological evolution on planet Earth and with the appearance of mankind, a technical and social evolution began which transformed lifestyle and life conditions for humans in a dramatic way. These accelerating processes are still on-going. The achievements of modern civilisation facilitated the protection from hunger, cold and hot climate, from biological enemies, communicable diseases and, finally, prolonged the life span and quality of life for billions of people. On the other hand, this historical change led to biologically inappropriate lifestyles and deprivation of nature, natural rhythms and natural environments. While life in urban areas became convenient as never before, the resulting lifestyle increasingly collides with the biological and genetic program of our mind and body.

Never have we been so far away from merging with the natural world, being separated from nature. By 2050, 66% of the world’s population is projected to live in cities. According to surveys, the average American spends over 90% of his or her time indoors. “Nature deficit“ can be identified as an underlying risk factor that might contribute to many chronic diseases as cardiovascular disease, anxiety and depression, metabolic disease, chronic pain syndromes and others. According to the global burden of disease study, chronic diseases have now become the major threat of mankind. Most of the diseases for which medical treatment is needed will be lifestyle-related in the future. In this context it appears, that besides established risk factor modification with exercise and nutrition, forest and nature medicine might play an important role for future disease prevention.

Not surprisingly, an increasing number of people world-wide is in search of regaining access and exposure to nature. People want to spend
their leisure time and holidays in natural outdoor environments as they intuitively feel the health-promoting and mood-enhancing effect of contact with and being in nature. The sounds of the forest, the scent of the trees, sunlight playing through the leaves, clean air — these factors increase well-being in a synergistic way and reduces stress, and, as outlined in this book, stress related disease. Furthermore, being in nature appears to restore our mood, gives us vitality and refreshes us. According to the biophilia hypothesis this health promotion by being in forest and nature might also lead to more ecological human consciousness and, as such, promotes the health of our planet.

Clearly, the targeted integration of forest medicine and Forest Therapy into conventional medicine hast to be driven by science as well as by appropriate clinical translation and professional education. It was in Japan, where megacities grew already in the seventies of the last century. There forest medicine and Forest Therapy emerged as a structured medical concept based on a modern, scientific background. The term “Shinrin-yoku” was coined which wisely considered the aspect of mindfulness when applying Forest Therapy. It were researchers from Japan who conducted studies to evaluate the therapeutic effect of spending time in forests on health and well-being. These Japanese studies influenced further research in Korea, China, Taiwan, Malaysia, Australia and various countries in Europe. In the meantime, numerous epidemiological, observational and experimentally controlled studies reported positive health and well-being outcomes among subjects who spent time in a forest. Some benefit was shown to be derived even with simply being exposed to natural aromatic fragrances or by just viewing natural environments. This was also the starting point of one of the pivotal studies on the potential health effects of nature. Roger S. Ulrich – an architect who specialized in building hospitals at Chalmers University of Technology in Sweden – followed patients whose gallbladder had been removed between 1972 to 1981. He documented that those that lay in hospital rooms with a window overlooking trees had significantly shorter convalescing periods than those who stared at nothing but walls. This report was published in the renowned journal Science. Findings like these and the increasing body of research which is presented in this book show our evolutionary past and demonstrate our connection to nature.

This handbook aims to give a scientific, state-of-the art summary of Forest Therapy and forest medicine and to frame concisely the quality standards for appropriate practical translation into training and education. Starting with the theoretical framework the status quo of research is delineated. This implies the spectrum of beneficially affected outcomes as blood pressure and cardiovascular regulation, endocrine
and immune function, metabolic disease, psychological well-being and others. Furthermore, the related physiological and psychological mechanisms are characterized and future avenues of research discussed. The various concepts of Forest Therapy in different countries and climate zones are presented. Practical aspects are described and international curricula for professional education introduced. Finally, the perspective and potential impact within Public health and preventive medicine as well as aspects of policy including the role of urban green spaces are explored and discussed.

Clearly, more research on Forest Therapy and forest medicine is needed, but looking at the body of evidence and wisdom gathered in this book, it becomes clear that modern medicine should not wait longer to make use of the resources and promising possibilities of Forest Therapy and forest medicine in global prevention and medical care.
Chapter 1

Theoretical Framework of Forest Therapy
1.1 Forests, experience and the good life

David Edward Cooper

1.1.1 Feeling good and being good

“We all know”, writes Qing Li at the beginning of his book on Shinrin-yoku, “how good being in nature can make us feel” (Li, 2018: 1). Less clear, perhaps, is how being in nature may help us be good – or, to put it more carefully, how experience of nature may contribute to the good life of a human being; to a life that goes well, and is flourishing and fulfilling.

“Therapy” has a medical ring to it, so it is unsurprising that much of the literature on Forest Therapy focuses upon the benefits for health and wellbeing of being in forests. Indeed, Forest Therapy is sometimes defined in medical terms, as a form of “preventative medicine” (Myazaki, 2018: Intro), or as “various therapeutic activities … to improve one’s health and wellbeing” (Lee et al, 2017: 1). No one would deny, of course, that good health is typically required for a good life, and the latest evidence confirms the common-sense view that nature therapies do yield “comprehensive health benefits” (Hansen et al, 2017: 1), including ones for the immune and cardiovascular systems.

But it should be clear too that health and wellbeing, even when these are understood in a generous sense so as to include, say, “spiritual” health, do not exhaust the good life. The life of a man who is in rude health and enjoys himself, but is also a wife-beating racist and a pig-ignorant drunken bigot, is not a good life. People who recognize this may prefer terms like “forest bathing” or “being in nature” to “forest therapy” and “nature therapy”. As one author points out, “forest bathing” suggests a looser kind of experience, “unburdened by [the] expectations” evoked by the term “therapy” (Clifford, 2018: xix). When we speak of Forest Therapy and understand “therapy” in a wider way, the important thing is to recognize that the good life comprises more than health and wellbeing as ordinarily viewed. When referring to the good life, it comes to mind a very ancient conception – one shared by early cultures as different as those of Greece, China and India. Briefly stated, the good life in these traditions is a life marked by virtue and understanding. The Confucian or Daoist sage, the enlightened Buddhist and the Greek eudaimon are all distinguished by a life of virtue informed by right understanding of the nature of reality. I will return to this fusion of virtue and understanding after identifying the potential connection it has to forest experience.
1.1.2 Experience and practice

A recent study suggests that simply “viewing nature” or “being present near nature” does not have the same “impact on the level of depression” that more active engagement with nature has (Lee et al., 2017: 13). This remark reminds us that Forest Therapy is not a merely passive experience of forests, but takes the form of various practices, many of which are described in Chapter 5 of this handbook. At a minimum, it involves walking through forest environments. This is not a matter of putting one foot in front of the other in order to get from A to B, but a practice that calls upon various skills of locomotion, attention, and orientation. All books on Forest Therapy distinguish better and worse ways of walking in forests, with a general agreement on at least some features of authentic walking. It should, for example be unhurried, and the walker should employ all the senses in mindful attention to the environment. Other recommendations vary among different authors. Only some, for instance, advise that the forest bather walks barefoot, or that simple meals are eaten in the forest setting.

That engagement with the forest can be skillful or clumsy, intelligent or stupid – that, more generally, there are criteria of assessment for this engagement - is one good reason for regarding it as a practice. Another reason is that it is a purposive engagement. The objective need not, as earlier remarked, be a narrowly medical or therapeutic one, nor anything as particular as gathering botanical information. Feeling closer to nature, relief from brooding over the problems of everyday life, freedom from the preoccupations of work, seeking a change in one’s attitude towards life and the world … these too are legitimate purposes that motivate people to practice immersion in forests (see, for example, Clifford, 2017: c.35).

It is not strained to regard Forest Therapy – especially as it becomes more established and generates traditions of practice – as a way in the sense that the Chinese and Japanese intend when they speak of a dao or dō, as in Jūdō or Chadō (the way of tea). A way is not simply a skilled practice, let alone just a hobby or pastime, but one that self-consciously aims at the betterment of one’s life. The way of the garden, for example, aims not only at the cultivation of plants but at self-cultivation. Ways are forms of care for the self, vehicles for the development of virtues and understanding (see Cooper, 2015).

Ways and practices more generally cultivate virtues and understanding since, without these, the practices cannot be properly engaged in. Care for plants, and an understanding of their needs, are not incidental to gardening, but essential. At any rate, you would have to be a very lucky gardener if your garden prospered despite your lack of care and knowledge. If engagement with forests of the kind found in Forest Therapy is seen as a
practice, a way, then various virtues and forms of understanding will be both essential to it and cultivated by it.

Here, then, is the general connection between forest experience and the good life. Authentic forest experience invokes virtues and forms of understanding, those two fundamental dimensions of the good life. Our question, then, is how precisely these elements of the good life are promoted by engagement with forests. First, though, an important observation on virtues and understanding.

1.1.3 “Wisdom”

The elucidations given referred to virtues and understanding, but this masks the intimacy – the final inseparability – of the two as they are understood in the ancient traditions of both East and West. Some virtues rather obviously require understanding: gratitude, for example, implies the knowledge that somebody or something has done something for which to be grateful. And some virtues are themselves “cognitive” – mindfulness, for instance, or openness to criticism.

At a deep level, in fact, every virtue involves understanding. Otherwise, as Aristotle taught, it is not “full” virtue. To act in a “fully” virtuous way is not simply to act well, but to do so with understanding of what one is doing and of its goodness. The compassionate person, according to the Buddha, is not someone with “a bleeding heart”, but a person who not only feels compassion but does so in response to understanding the truth of things. The virtuous person must have some grasp, however implicit and inchoate, or his or her place in the scheme of things.

At the same time, our understanding of the scheme of things is incomplete or shallow unless translated in virtuous actions and attitudes. To recognize, for example, the Buddhist truth that selves are not independent entities or “souls” is not an academic exercise - not a matter of mere intellectual assent to a philosophical proposition - but rather to internalize or “deeply cultivate” the doctrine of “not-self”. And what shows that it has been internalized is precisely the exercise of such virtues as humility and compassion that, so to speak, sets the doctrine in motion.

In both the Greek and Indian traditions, this fusion of virtue and understanding is called “wisdom”. The wise person is not a repository of scholarly knowledge, but someone whose understanding of large truths about the world, the human condition and the self is both informed by and reflected in the virtues that he or she manifests. This is why the life of a wise person is a good life.